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ALBERTA INDIAN YOUTH

A STUDY IN CREE AND BLOOD STUDENT CONFLICT

by



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A THESIS

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The undersigned certify that they have read,
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Abstract

The basic purpose of this investigation was to replicate the Bryde Study (1966) in its method, study its propositions and findings, modify its rationale and extend its experimental design.

Bryde's aim was to investigate the non-intellectual correlates of the "cross-over" phenomenon, a behavior demonstrated by various Indian student groups who achieve satisfactorily in the starting grades and who then reveal a steady decline pattern in achievement during their remaining school years. The following study also attempted to describe the change in personality traits (non-intellectual correlates) that may accompany educational achievement decline (the "cross-over" phenomenon). This study assumed that stresses induced by the differences between White and Indian cultures do have a strong bearing on the measurable personality disturbances that appear at the junior high school level in personality. It was hypothesized that the personality configurations of samples of Cree, Blood, and White junior high school students change through time. In more specific terms, it was held that the configurations of personality variables is different for the Indian students as compared with that of the Whites with the following characteristics: 1) with increase in grade level the pattern of variables moves into an alienation set within the Indian groups; 2) this pattern is different from that which appears for the White group; and 3) for a sub-group of Blood students, for whom longitudinal data was obtained, no change in personality configuration

trend is observable.

A total of 389 Indian and White adolescent students, which divided into 127 Cree and 162 Blood in grades 7, 8, 9, and 100 Whites in grades 8, 9, were compared on 29 personality variables by means of two way analysis of variance and visual comparison of means.

The first two hypotheses received qualified support. Some indication of change to greater maladjustment through the grades was observed in both Indian groups. The White Sample displayed a relatively clearer decreasing maladjustment pattern. Visual examination of means further confirmed the White pattern of comparatively less personality dysfunction. It was found that in all samples, the observed trends were indicative of an alienation configuration.

Principal component analysis revealed Conflict-Anxiety as the major dimension of the alienation-complex, with secondary facets consisting of Isolation, Resentment, Alienation, Manipulation, and Withdrawal. The observation that comparative divergence and not radical difference exists between Indian and White samples was also confirmed by this analysis.

Hypothesis 3 received substantial support: no significant change in Blood personality configuration trend was observed.

The concept of alienation, throughout the various analyses, appeared relevant as a description of the behavior of the Indian students studied. This conclusion lends support to the Bryde viewpoint that an alienation concept is central in the explanation of

Indian adolescent behavior (1966, p. 141).

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CHAPTER I

The General Problem

The imposition of white behavior patterns on Indian groups who did not share white values, coupled together with ecological upheaval characterized by the disappearance of the buffalo, for instance, and the segregation of Indians on reserves, are generally recognized as having had a marked effect on the social and cultural patterns of most North American Indian tribes, and which is apparent to the present day. A majority of investigators attest to this, e.g. Barry, 1965; Braroe, 1965; Fisher, 1967, 1969; Underhill, 1953; White, 1966; Zentner, 1963. Some authors have gone so far as to state that the confrontation brought about by an imposed alien culture on their own, has led Indians to live in constant frustration (Spindler and Goldschmidt, 1952). What happens to the behavior of individuals living in a society subject to severe stresses is a legitimate psychological concern. Under conditions of sustained cultural conflict, what signs of stress, if any, does Indian personality reveal? Striking evidence of Indian student malfunction lies in the educational failure of a majority of students (Bryde, 1966; Hawthorn, 1967). It is the phenomenon of change in personality variable patterns that may occur during a time of school grade progression which constitutes the general object of this investigation.

The position of this thesis together with the research results provides essentially an examination of the Bryde (1966) claim. Bryde concluded that a concept of alienation appears to be central in explain-

ing the personality disturbances of Sioux Indian students. He assumed that these dysfunctions block achievement, particularly at the adolescent levels (see Chapter II). The present study is an attempt to refine the Bryde rationale, and is an application of his method to Alberta Blood and Cree students. Although in basic agreement with Bryde's use of alienation theory, the conceptual basis of this analysis is a modified interpretation of his perspective.

As stated, data affirming the fact of Indian educational failure is found in the area of school attainment. It has been found that after achieving at or above the norm for standardized tests, in about the sixth or seventh grade, a high percentage of Indian pupils begin a rapid and steady decline in achievement (Bryde, 1966; Couture, 1967b). This "cross-over" phenomenon is accompanied by a high drop-out rate (Couture, 1968a; Hawthorn, 1968). In light of the reported difficulties in school attainment, the one general problem focussed on by this study has become one of determining what changes in personality take place during the time that Blood and Cree Junior High School pupils begin to exhibit a steady decline in school achievement, relative to Whites.

This general question implies several issues. Are there any apparent differences in personality structure of Indian children in the seventh, eighth and ninth grades? If so, how do these personality trends compare with White classmates? Is there any evidence that the personality patterns of Indian students differ from those of White students? Is the major component of apparent personality change, if any, related to alienation?

The findings for the Blood and the Cree will be compared in the conclusion to this investigation with those reported by Bryde for the Sioux. It is hoped that some level of generalizability of results will thus be achieved.

CHAPTER II

Related Theory and Research

The major portion of this chapter consists of a review of the literature relevant to the concepts of acculturation, alienation, and Indian educational attainment. In this analysis, an attempt is made to set forth the relationships between these three areas. Since this study is proposed as an examination of the Bryde findings, these will be reviewed in some detail in the section on alienation.

A. Acculturation

Extensive reviews of the literature in the areas of acculturation, psychology and anthropology, culture and personality, already exist (see Beals, 1962; Luebben, 1965; Spindler, 1960). The review here analyzes only those studies which are not specifically covered by these three authors, and which are related to the general objective of this study. It is contended that the conclusions that follow appear to concur with the views of Beals, (p. 375), Luebben (p. 75), Spindler (p. 510), and also with those of Driver (1961, p. 553) and Jacobs (1964, p. 156).

1. Acculturation and culture

Most studies on acculturation seem to be based on general, often very vague definitions of this phenomenon. The Linton definition is selected as being the clearest (Spicer, 1961, p. 518):

. . . acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact, with subsequent changes in the original culture patterns of either or both groups. . . (Linton, 1963, p. 463).

Acculturation is an instance of the broader process of culture change. Assimilation is viewed as being one phase of acculturation, with diffusion as being a second. No further distinctions need be made, it is felt, since the concern of this study is with acculturation as a global process, one which is culture-receiving as well as culture-producing (Hallowell, 1957, p. 205).

We are not told what the "phenomena" are, nor are the determinants and modes of "first-hand continuous contact" indicated. This vagueness is perhaps unavoidable since the variability of closeness and continuity of contrast in change situations can be very great. Contact situations are varied and complex, making the definition of the interacting components a very difficult task (Spicer, 1961, p. 519). It is this difficulty which certainly explains in part the comparatively greater number of case study and comparative studies in this field - because they are easier - in contrast with attempts bearing on the details of the process of acculturation itself.

Since the concept "culture" is central to acculturation, it requires some definition. The Linton position is again favored.

Culture is defined as:

. . . the sum total of the knowledge, attitudes and habitual behavior patterns shared and transmitted by members of a particular society (p. 466).

This definition is believed to be the best derived thus far for purposes of describing and predicting attitudes and behavior of a particular society's members, and for studying the changes in behavior which may occur under various conditions (Linton, p. 466; Spicer, 1961, pp. 520, 526). Common opinion is that cultures are adaptive mechanisms, patterned and shared responses to human needs. Culture is in constant drift (Eggan, 1963), change or adaptation to changing needs. The adaptive mechanisms can be improved upon. This inherent imperfection, together with the dissatisfaction of individual members can and does make for culture change (Tremblay, 1962, p. 301). Cultural elements are the things that the individual has to learn or unlearn as a participant in culture change. Under normal conditions of change, no old element is discarded until a satisfactory substitute has been formed for it in all its functional relationships. Under abnormal conditions of change old elements are discarded without satisfactory substitution by new elements. It is at this juncture that one can begin to sense a relationship between abnormal cultural change and alienation.

2. Acculturation and alienation

Whenever the normal change process is inhibited such that there is a series of losses - of behavioral patterns, without replacements, then certain needs of the group are not satisfied, derangements in behavior, social and economic relationships are produced, resulting ultimately in profound discomfort for the individuals involved

(Graves, 1967, p. 310). In the context of this study, the state of profound discomfort is viewed as being a global response, multi-faceted, and is referred to as one of alienation. Cultural stresses make for an anomic situation, eliciting individual responses which can be of alienation (Bryde, 1966, p. 39; Spilka and Bryde, 1964, p. 6; Couture, 1967a, p. 5).

The history of contacts between Europeans and American natives reveals that the first steps in enforcement of culture change have usually been negative, i.e. certain patterns in the native culture were inhibited (Linton, 1963). The path of culture change that has been traditionally presented to the North American Indian, with the exception of the Mexican Indian, has been one of varying degrees of disintegration of norms and values, in other words of anomie, leaving the various tribes, Indian groups and individuals, in a state of confusion and frustration (Vogt, 1957, pp. 156-7).

3. Indian acculturation

This phenomenon of Indian cultural breakdown has received serious attention from a number of investigators. The several analyses are here grouped under the headings of cultural studies and psychological studies, although the two cannot be considered to be mutually exclusive.

a. Cultural Studies

According to Spicer (1961, p. 517) consensus is that to date no adequate theory of acculturation, let alone of Indian acculturation,

has been developed. The studies reviewed here focus on either the process as a whole, or on alleged single components of that process, or deal with non-processual aspects of acculturation, such as the final material or behavioral changes.

Investigations by Honigmann, Linton, Mead, and Thompson seem to be representative. Honigmann (1941, pp. 71-73), describing the Slave Indian, felt that while the general configuration of Slave culture has moved from a position of strong self-sufficiency to symbiotic dependence on White culture, Slave Indian individualism nonetheless has persisted, unaffected by acculturation, and is in fact delaying it. From his study of seven American tribes, Linton (1940, pp. 103-105) concluded that the only constant phenomenon resulting, when groups of individuals having different cultural backgrounds come into continuous first-hand contact, is the establishment of mutual modifications and adaptations enabling the groups to live together. If there is opposition on one or both sides, the amalgamation of the societies and cultures involved will be postponed indefinitely.

Most studies appear to be but partial explanations of cultural modification. They might be labeled "component variable studies". They abound in expressions such as steps, phases, elements, facts, dimensions, points . . . all referring to the acculturation process (Firth, 1958; Keesing, 1939; Kraus, 1941; Malinowski, 1945; Mead, 1932, 1955; Mekeel, 1932a, 1932b; Murdock, 1965; Renaud, 1955; Thompson, 1948, 1951; Thompson and Joseph, 1948; Vogt, 1957). These studies underscore however one outstanding fact, that of the apparent incredibly slow pace

of acculturation of the North American Indian. This holds as well with reference to personality change of the Indian (Wallace, 1952). McNickle (1968) suggests that Indians have always known how to devise alternative ways of co-existing, without betrayal of traditional values. Mcfee (1968), and Shimp and Williamson (1965) indicate that Indians have learned new ways without abandoning the old.

A number of attempts have been made to discern outcomes of specific situations in acculturation settings (Aginsky, 1949; Barnett, 1941; Dozier, 1951; Fisher, 1966; Goldfrank, 1945, 1952; Vogt, 1948). Some of the pertinent findings confirm that a primary motive of innovation stems from some kind of personal conflict. Vogt (1951) affirms that deviance from traditional Indian roles and patterns of culture as such, inner conflict and insecurity, and sustained white contacts, are the factors which lead to changes in individual value systems and thereby in group organization and behavior.

b. Psychological Studies

Of first interest are the modal or basic personality studies. As already noted, personality variables are of prime importance in the acculturation situation. Several studies point to the amazing fact of the persistence of personality structure despite severe changes in environmental conditions (Barnouw, 1950; Caudill, 1949; James, 1961; Kardiner, 1945; Wallace, 1952, 1962). Culturally, Indians may appear more and more to be like Whites, psychologically however they remain Indian. The Bloods are a case in point. Fisher (1966) and Spindler (1965)

maintain that Blood acculturation is more apparent than real, and that there are attitudinal continuities. Other studies conclude that native women seem to fare better psychologically in the acculturation process than do men, while remaining comparatively more rooted in the tribal traditions of the past (Hallowell, 1940, 1941, 1952; Mead, 1955; Vogt, 1951).

Macgregor (1946), suggests that there is a basic conflict between the developing individualism of the white man and the cooperation and sharing of the Indian. He maintains as well that the social structure, the poverty, the lack of adequate roles and cultural objectives, the social conflicts which arise out of lost controls and changing attitudes, are conditions strongly conducive to group and individual insecurity in tribes like the Teton Sioux. A sense of cultural loss and a deep feeling of being neither White nor Indian intensify this insecurity. The latter together with psychological isolation of the adult has its repercussions on the children who are growing up without consistent models with which to identify.

c. Discussion

The analyses referred to, both cultural and psychological, seem to indicate that cultural confrontation for most Indians becomes a severe stress situation. The pressures of acculturation impinge strongly on the group and the individual member. This suggests that the basic individual feeling, or pattern of response that is thus aroused, is global in nature and in scope, and may be referred to as

alienation.

A second impression is that theory and conceptualization are still in the formative stages. The literature does indicate a consensus as to the analysis of acculturation in terms of "stages" or phases". Beyond this general agreement, there is very little understanding of the nature and components of the process, other than the postulation of acceptance, syncretism, and reaction, as possible results of culture contact situations (Beals, p. 390).

Psychological studies of acculturation and personality have basically the same objective, namely that of examining the relationship between a culture and the personality of its bearers. The research has tended to focus on the amount and rapidity of personality change as influenced by the conditions of cultural contact, and the relation between personality and the acceptance or rejection of cultural change (Beals, 1962; Spindler, 1957, 1960, 1965). In this regard, the various studies of Indians have brought to light the fact of "basic personality", and the striking resilience thereof (Mindell, 1968a; Thompson, 1948; Wallace, 1962). Psychologically speaking, this points to a stability of characteristic attitudes over a long period of time, despite the vicissitudes of imposed culture change, and culturally speaking, values tend to persist.

Research also reveals that if there is a shift in behavioral pattern, it is usually regressive and disintegrative in nature. However, psychological and cultural changes do occur when the barriers to achievement on the white man's terms are broken down, so that the new

adaptation thereby becomes rewarding rather than punitive (Chance, 1965). In the absence of clear-cut meaningful rewards for psychological and cultural readaptation, an existing total structure based upon an attenuated traditional culture appears to block out whole areas of the cultural environment, allowing only limited learning of western techniques.

Valuable as these insights are, they remain broad and general. However, as stated before, the details of acculturation and of the specific effects on personality remain to be worked out (Hickerson, 1967; Leuben, 1965; Mead, 1963; Spicer, 1961; Spindler, 1960; Wallace, 1962). To understand the genesis and functional character of personality behavior in a culture change setting, as the Spindlers (1965) suggest, new tools are needed in order to detect the psychological and socio-cultural processes of the individual perceiving and groping toward new solutions which require the reorganization of thinking and feeling, and which are in part the product of this re-organization. With the awareness that socio-cultural systems are represented in, but are not identical with the affective and cognitive processes, psychologists might now carefully study such characteristics and processes as the formation of cognitive maps, perceptual structuring, affective controls, values, and ego defences (Spindler, 1960).

Attempts at culture change formulation have tended to set forth a linear pattern, a la Freud. Although there is a chronological dimension to the on-going process, and while it is quite difficult, if not impossible to get away from a geometrical pattern, cultural and

psychological changes models could be described in terms of inter-penetrating and inter-related processes, and investigation might advantageously look to the salient features of actual changing conditions, such as the direction of change and impact of such on behavior. Barkow (1967) and Naroll (1970) stress that cross-cultural studies require a model that precludes the concept of causality in its temporal sense because the investigator is faced with a macrosystem or network of inter-dependent factors, each one being a limiting influence on each other. It is assumed that within this network of repeating and reciprocal relationships among variables, some variables would appear to be more linked or more salient than others. In the context of the present study then, the discussion of alienation assumes such salience.

B. Alienation

A review of the sources of definition of alienation together with a discussion of this concept in its application to the North American Indian comprise this section.

1. Alienation as a concept

a. Psycho-sociological-historical Tradition

There appear to be two major sociological traditions in the study of deviant behavior (Cloward, 1963, p. 402). The classical expression of the first, known as the "anomie" tradition is to be found in the works of Marx, Durkheim and Merton. The second is

manifested in the writings of Shaw, McKay and Sutherland (in Cloward, 1963), and is referred to as the "cultural transmission" and "differential dissociation" tradition.

Marx and Durkheim are initially responsible for the formulation of the concepts of anomie and alienation. Durkheim (1960) defines anomie as a breakdown in social control, a state of cultural disorganization and deregulation in which the individual is unable to refer his behavior and that of his fellows to any stable set of standards. A social state of normlessness is said to exist (Horton, 1964; Nettler, 1957; Yinger, 1965). The individual in such a situation may or may not respond by developing the psychological state of alienation (Clark, 1959, p. 849). Accordingly, the critical focus of alienation is on whatever social conditions separate the individual from society conceived of as an extension of the self through self activity, rather than from an abstract entity independent of the human self (Bullough, 1967; Clark, 1959, p. 849; Gould, 1969, p. 40; Hajda, 1962, p. 758; Horton, 1964, p. 285; Pearlin, 1962, p. 315; Zurcher, 1965, p. 539). To be alienated however, according to other contemporary investigators, is not necessarily tantamount to being normless and powerless; it can well be a healthy state (Hobart, 1965; Maslow, 1954; Nettler, 1957; Tillich, 1963).

Anomie is viewed as being extraneously produced and as eliciting from the individual in such a setting a behavioral response which may be one of alienation. Marx (1962), drawing on the Fierbach and Bauer systems (Bell, 1962), emphasized the development of self-estrangement,

i.e. the failure to develop a real sense of person identity in a normless situation. Merton (1963) discerned a relationship between prescribed goals and the organized access thereto by legitimate means - if access is denied, alienated behavior is the result (see also Meier and Bell, 1959; Mizruchi, 1960). Cloward extended the Durkheim-Merton formulation to include illegitimate means as well. MacIver (1960) holds that anomie is a state of mind wherein there is no sense of roots, standards, continuity, and that anomie is a disease of the civilized and not of simpler peoples, a disease inherent to our times (see also Arendt, 1963; Barret, 1962; Bell, 1957; Blauner, 1964; Erickson, 1960; Fromm, 1962, McClosker and Shaar, 1965; Mills, 1962; Pappenheim, 1967; Schachtel, 1962; Toynbee, 1960; Van den Berg, 1961; Weiss, 1962).

In its traditional form, the concept of alienation was an attempt to describe the changes in the nature of manual work induced by the industrial revolution (Blauner, 1964, p. ix). The classical school deriving from Marx and Durkheim has presented a multi-faceted concept which it has not attempted to formulate in operational terms (Horton, 1964, p. 286). Some contemporary writers however have strived to do so: Seeman (1959, 1962, 1963, 1964, 1966, 1967), drawing on Rotter (1954) and Fromm (1955), differentiates meaninglessness and self-estrangement (see also Hobart, 1965); Dean (1961) distinguishes further by adding powerlessness, normlessness and social isolation (see also Neal and Rettig, 1963; Neal and Seeman 1963); Elmore (1965), on the basis of factor-analysis, maintained valuelessness, hopelessness

and close-mindedness as being the basic dimensions of alienation, whereas Struening and Richardson (1965), using the same statistical technique, claimed nine dimensions: alienation via rejection; authoritarianism; trust and optimism; authoritarian family orientation; perceived purposelessness; conventionality; religious orthodoxy; self-determination; emotional distance.

b. Socio-psychoanalytical Formulations

A state of alienation exists when human relationships become "thingified" through the absence of love, trust and kindness (Fromm, 1962). Short of persistent sameness within self and with others, a person is rootless, alienated (Erikson, 1960, 1963). These two writers are perhaps the two most outstanding and representative of the psychoanalytical orientation. Many others write in terms of the nature of, the need for, and the obstacles to the development of a self-identity, without which a person is in a state of alienation (Benedict, 1946; Bettelheim, 1962; Goffman, 1960; Grinder and McMichael, 1962; Hollingshead, 1962; Lynd, 1963; Mead, 1961; Pappenheim, 1967; Patsula, 1968; Schachtel, 1962; Tillich, 1963; Weingarten, 1962, Weiss, 1962).

c. Discussion

The two preceding sub-sections reveal that there is considerable variety in the terminology employed to describe alienation phenomena - the incompatible demands of society lead to alienated behavior (Merton, 1963); under anomic conditions no self-identity is possible (Marx, 1962);

social conditions produce alienated behavior in that they make for a specific set of social learning experiences (Coleman, 1964a; Seeman, 1959); there are obstacles to personal achievement and fulfillment (Fromm, 1962; Gottlieb, 1964); one must go beyond conflict and cultural relativism to universal values in order to attain genuine individualism (Lynd, 1943); estrangement from and unfriendliness toward one's society is the characteristic of an alienated person (Middleton, 1964; Nettler, 1957). However, whatever the apparent diversity, the expressions in use seem to point to one thing, namely that there is some kind of relationship between social structures and conditions, and individual behavior, such that, when the former are inhibitive, alienated behavior, to some degree, is the result (Coleman, 1964b; Srole, 1956). A bi-polar model appears to prevail. There is a relationship between the subjective and the objective, which according to Stirling (1964, p. 18) is causal. This consensus appears to be essentially akin to that observed in the acculturation studies reviewed earlier. Virtually the same explanatory model of analysis has been applied, with little or no revision or amplification thereof since Marx and Durkheim: a specified social-cultural condition gives rise to specified feelings in individuals which are expressed through specific behaviors (Dean, 1967; McCloskey and Shaar, 1965).

2. Alienation and Indians

This section reviews the pertinent studies having an alienation conceptual base, and then secondly, discusses the advantages of such theory applied to Indian behavior. Finally, the sparse material

available regarding the Blood and Cree Indians of Alberta is examined.

a. Indian Alienation Studies

At present there are only five known studies of the Plains' Indian which utilize an alienation concept as such. The reference is to Bryde (1964, 1966), Kerchkoff (1959), Spilka (1964, 1966). Tefft (1967), and Wax (1964, 1966). Given the relevance of the Bryde study to this investigation, it is considered separately from these four and other related studies.

i. The Bryde Study

Bryde's goal was to study the non-intellectual correlates of, and possible causes of what is known as the "cross-over" phenomenon, as exhibited by Oglala Sioux adolescents. We speak of the "cross-over" phenomenon arises whenever various groups of students, after achieving at or above the established norm on standardized tests in the early school years, steadily decline in achievement during the remainder of their school life.

Bryde assumed that the confrontation of White and Indian cultures comes to a focus at adolescence resulting in personality disturbances serious enough to block achievement. On the basis of this assumption, he hypothesized that 1) significant differences unfavorable to Indian students would be revealed through a comparison of Sioux Indian and White adolescents on achievement and personality variables as measured by the Minneapolis Multiphasic Personality Inventory (MMPI); 2) that these unfavorable differences would correlate

with the degree of Indian blood; 3) that significantly greater personality disturbance would be observed in the Indian dropouts in comparison to Indian students continuing in school.

The central focus of the study was 164 Indian and 76 White eighth grade groups. However, a total of 415 Indian and 223 White adolescents, divided into six different Indian-White groups on the basis of age, grade and sex, and five within-Indian groups on the basis of degree of Indian blood (one quarter, one half, three quarter and full blood), age, grade and sex, were compared to effect as broad an appreciation of potential group differences as possible.

Evidence supportive of all the hypotheses was obtained. From the fourth to the sixth grade the Indian students scored significantly higher than the national norm for achievement. The Indian students were significantly lower than the national test norms at the eighth grade level. On personality variables, the Indian students revealed consistently and significantly more disturbance on more variables than their White counterparts in all of the six White-Indian group comparisons. In each of the comparisons, the Indian groups consistently and significantly revealed themselves as feeling more rejected, depressed, withdrawn, paranoid, as well as more socially and emotionally self-alienated. It is these latter states that constitute the Sioux alienation syndrome (Bryde, 1966, p. 129).

The analyses made focussed on several over-lapping groups: all Indian boys and all Indian girls, degree of Indian blood groups, Indian eighth, ninth and twelfth grade groups, Indian dropouts in comparison

with all Indians and Indian twelfth grade. The Indian girls revealed themselves to be more disturbed than Indian boys in the areas of anxiety, depression, dependence, social and self-alienation. No significant differences on the achievement variables were observed among the blood groups. However, the personality measures revealed that the more Indian blood a pupil has, the greater his personality disruption, the higher his scores are on the scales for depression, compulsion, rejection and alienation. Of all groups, the Indian drop-outs obtained the highest scores on scales measuring feelings of rejection, depression and alienation.

On the basis of these results, Bryde concluded that the " . . . concept of alienation appears to be central in explaining the behavior of the Indian students studied" (1966, p. 190).

Bryde's effort is an attempt to discern what appears to be a general personality syndrome. It is his opinion that Sioux culture and society, once providing of norms for its members, is currently anomic for all practical purposes, and as a result, the majority of the Sioux are tending to reveal response patterns indicative of alienation. Supported by the Havighurst (1965, p. 107) and Paxton (1962, p. 145) claims, Bryde maintains that the Sioux are actually caught between two cultures, and are literally outside of, and between both the White and traditional Sioux cultures.

ii. Other Studies

Kerchkoff's concern is with the kind of social context in which

a child is reared. He concludes that the more anomic the cultural milieu is, the lower the degree to which the need for achievement becomes part of the Indian child personality.

Spilka, Bryde's mentor, upholds the Seeman five-faceted definition of alienation. In Spilka's (1966) estimation the Sioux are not part of, and are therefore alienated from the dominant traditional white culture, which is to be reckoned with, for the latter is relatively permanent and pervasive. Because of this, Spilka is concerned with the process of transition into the dominant white value system.

In contrast, Fisher (1968) argues that the Indian is not alienated. In his words: " . . . the Indian may look 'alienated', but really he isn't. His situation is one of being within the complex of 'cultural conflict'. He may be 'alien to', but not 'alienated from' white culture.

The Waxes (1964, 1966) uphold that on-reserve schools are characterized by an on-going process which alienates pupils away from school. This process is premised on the dynamics of Sioux social system. At the high school level, socialization is operated by the peer group. The valued virtue of "raising cain" goes directly against what the school requires. This conflict leads to being "pushed out" rather than "dropping out".

On the basis of student self-perceptions Tefft (1967) concludes that Arapahoes are inwardly disoriented and demoralized. Their group is in constant flux of acceptance and rejection of white values. It is this conflict between norms and goals which make for lack of self-

identity.

A recent report employs alienation terms to explain the behavior of Indian students from all tribes in Canada (Hawthorn et al., 1967). They affirm that:

One of the outstanding themes of Indian youth is the sense of alienation they feel with regard to their own culture and also to non-Indian culture. If one accepts many of their expressions at face value, one is forced to conclude that the majority of them live in no-man's land from which they have no escape. . . . The sense of powerlessness results in failure to achieve, lack of motivation, low levels of aspiration and inability to assess one's own potential (p. 116).

A number of other studies point to a same underlying disruptive pattern. White (1961) cites the plight of the Indian in an urban setting. Roy et al. (1970), and Leighton (1968) describe the prevalence of mental disorder amongst Indians. Wainrib and Rothman (1963), and Murphy (1965) discuss the loss of ego control amongst Mohawk pupils. Leon (1968), Marks and Green (1971), Wilson (1968), stress the Indian's sense of powerlessness and helplessness. Mindell (1968b) explains Sioux personality difficulties in terms of anxiety.

b. Usefulness of the Alienation Perspective

The question has been raised as to whether or not an alienation construct has validity as an explanation of Indian behavior. While it has advantages, as witnessed to by the above applications of it, it should be noted that alternatives are claimed.

Explanations have been expressed in terms of cognitive style (Witkin, 1965; Spindler, 1963), or "passive resistance" (Fisher, 1967), of "sociosis" in preference to neurosis (Van den Berg, 1961), of "process

of dis-illusionment" (Edgerton, 1965), of "psycho-social nomadism" (Krush in Saslow and Harrover, 1968). Erikson (1963) presented an impressive intuition to explain Indian behavior in terms of an eight level development of ego identity as influenced by the stresses of cultural confrontation and/or conflict. However, it is contended that these various definitions perhaps are not really alternatives. The heterogeneity is solely in the terms. The choice of terms employed indicate emphases. Such labels appear to point basically to a same reality, such as described by Bryde (1964), and which is essentially alienated behavior.

In order to provide a better delineation of Indian alienation, further discussion of the concept, apart from its application to Indians, seems useful at this juncture. This is followed by a reference to the general condition of North American society, an alienated and alienating setting, as well as by reference to Indian child rearing practises and Indian school environment, terminating in a final appraisal which stems from the Bryde-Spilka position.

i. Alienation in se.

Use of the concept of alienation in itself appears to present two problems. One difficulty is with regard to conceptual definition or inherent meaning of the word, and the second difficulty pertains to just what empirical phenomenon is described by the term.

The problem of definition arises primarily from the fact that a number of disciplines employ the term. Historically, as we have seen, alienation is sociological in origin, deriving from themes of mass

society. It is also a favorite term with historian-philosophers as well as with social analysts. In the sociological tradition this concept has been primarily used as a key ethical concept, a theory of modern mass society (Neal and Seeman, 1963), a prism as it were, through which the world is viewed (Bell, 1962, p. 197; Feuer, 1963, p. 127; Horton, 1964, p. 285).

The various attempts at definition appear to have been concerned with whether alienation is "global", "general", multi-faceted", or "multi-dimensional" in nature as opposed to being singular and specific. Consensus is that alienation is a complex process, the features of which are still quite elusive (Browning, 1961; Hobart, 1965; McCloskey and Sharr, 1965; Seeman, 1961). Most scholars agree that alienation is a multi-form or multi-dimensional construct. This raises the question as to whether it can be given precise operational meaning and be useful for social analysis (Aiken, 1966; Bullough, 1967; Cartwright, 1966; Dean, 1959; Elmore, 1963; Neal and Rettig, 1967; Seeman, 1959; Struening and Richardson, 1965). Empirical and theoretical research is underway to elaborate the differential relationships of alienation constructs with one another and with other social constructs under varying social conditions (Hobart, 1965; Neal and Rettig, 1963, 1967; Stirling, 1964).

What alienation refers to is a second problem. Is it a process or a result of a process, a subjective or objective state? Is it a single process comprising several phases? What are the conditions or components thereof, the bases or determinants? What combination of predispositional factors and correlates fuse to produce it? Is it a

syndrome, a pathological state, or can it be a matter of choice, a healthy state, a transitory moment to more self-autonomy? Is a healthy state possible within a modern society that appears to be alienated and alienating?

A special difficulty regarding the meaning of the term and its referents lies especially in the area of the modes or special instances of alienation (Neal and Rettig, 1963, p. 608). This arises largely from the basis, first of all, once again, that different academic disciplines employ the term as an analytical instrument from within varying theoretical frameworks, and secondly from the fact of the difficulty which investigators experience in defining a quality, having both dimension and direction, and which is found in all areas of human experience, i.e. when alone, or when in a group, and which results from a process (Hajda, 1962). A final difficulty stems from the inherent and perennial problem of translating an idea into a unity of behavior that can be quantified.

This complex of difficulties is further compounded when the attempt is made to formulate alienation in terms of the broader process of acculturation. To the moment, it would seem that research in the area of alienation has yielded only crude results, both in the areas of theory and measurement. These results however are promising, as for example the Bryde Study which is particularly pertinent to the present investigation. It is apparent that the search continues for a schema for classifying individual responsivity relative to the broader

social contexts in which behavior occurs. Such a macrosystem could be conceived of as an intra-individual behavioral complex inseparable from that of the psycho-sociological context with which there is constant interaction. Such a system as Hobart (1965) suggests could be viewed as consisting of two networks of interacting and inter-dependent variables, a process comprising the subjective and objective.

ii. The Alienating Setting

The area of the sources of alienation also requires some attention. Current terminology with reference to the Indian scene points, for example, to the breakdown of social structures, poverty, lack of adequate roles and cultural objectives, social conflicts arising out of lost controls and changing attitudes. These are features which are interpreted as defining a global condition, one initially external to the individual, impinging on the individual, and resulting in an alienated behavioral response tendency. For instance, Hoyt (1962), Saslow and Harrover (1968), and Spilka (1964), maintain that it is out of such a general psycho-social condition that high rates of crime, delinquency, alcoholism, truancy and mental disturbance develop.

A second area of focus bears on the effects of the presence of the dominant white culture viewed as the setting or context to Indian groups. The global environment of any Indian group with which it is in constant interaction is clearly that of North American White society. This society presently possesses several characteristics which contribute to the alienation of the Indian. Our society stresses success and

achievement in individuals as its primary pattern of values. This self-betterment is conceived of in economic terms (Henry, 1963; Mills, 1962; Porter, 1965; William, 1960). The lower one finds himself on the socio-economic ladder the less likely is the individual to gain the motivation or training necessary towards such success (Goldstein, 1967). By and large Indians occupy low rung positions (Hawthorn, 1966). The situation is basically one of emphasis upon certain success goals without providing the means of attainment (Merton, 1963; Cloward, 1963), thus providing conditions conducive to alienation.

iii. Child Rearing Practises and School Environment

A third basis for the development of alienation among the Plains' Indians ironically derives, it is believed, out of the child-rearing practises employed by Indian parents. With reference to this point there is a marked absence of literature describing Canadian Indian practises. It is assumed, however, for purposes of this disucssion, that there are similarities with those of the American Plains' Indians, e.g. the Sioux (Bryde, 1966; Erikson, 1963; Hassrick, 1964; Macgregor, 1946; Mirsky, 1936), the Ojibwa (Boggs, 1956), the Blackfoot (Maslow and Honigmann, 1947), and the Canadian Indian (Hawthorn, 1966, 1967). The latter two reports provide some Canadian evidence warranting the assumption just made.

The effect of highly permissive and indulgent upbringing, which appears to be contrary to that of prevalent white custom, is to foster in the Indian child a close trust and reliance on others about him.

The child is given every opportunity to develop independence by being permitted to explore the world without the interference of parents. The role of the elders is simply to cater to the child in every way possible. Discipline in terms of parental authority is totally absent, and it is felt that the child will acquire all necessary knowledge through his experiences with his environment. Since trust and consideration are esteemed virtues, every effort is made to place adults in a supportive and warm relationship with children. The few controls exercised, which may or may not be adopted by the children are based on warning and shame, rather than on authoritarian direction and guilt training.

Children, so trained, enter school, an institution which is very much a purveyor of traditional white middle class culture. The personnel, the administration, the facilities, textbooks, all represent and advocate the adoption of middle class values (Wax et al., 1964). Not that these values in themselves are undesirable, but they are, in matter of fact, opposed to those to which most Indian children have been exposed in their pre-school years. Stressing achievement and success in an authoritarian-oriented atmosphere of work and social relationships presents to the Indian child a milieu wherein he cannot find emphasis on affection and indulgence, feelings to which he has become accustomed (Maynard and Twiss, 1969). The child is confronted by a system which values a form of competition different from that prevalent in Indian society. The acquisition of signs which order the

children along a continuum of success and failure, and which also provide new labels and differential treatment which tend to order children in terms of from better to worse, is clearly alien and unacceptable to the child and his parents (Fisher, 1967; Wax, 1967; Wolcott, 1967). Failure is interpreted in terms of ridicule and shame, hence withdrawal from and aversion to such standard classroom practises as recitation, testing. That serious conflict results from such confrontation is to be expected. The general response pattern arising out of such a confrontation is seen here as one of alienation.

iv. Conclusion

In light of the considerations made in this discussion of the usefulness of the alienation concept, the choice of the Bryde-Spilka position on alienation as a useful explanation of the behavioral situation of the Indian seems justified. Several qualifying observations are however in order.

The Bryde-Spilka concern is the problem of articulating individual responsivity as relative to and dependent on the broader socio-anthropological context within which Indian behavior occurs. This position is helpful, basic even, to explaining the puzzling, very troubling and undesirable behavior and conditions found on reservations generally. Open to question is the statement affirming that the Sioux are caught between two cultures and being not of either. Regardless of the prevailing psycho-social conditons on a reserve, Indians do have a way of life of their own. The point that should be made is simply

that Indians are in a different culture. They are in a process of acculturation due to the fact of white culture constantly impinging on theirs, and theirs on white culture. Perhaps the expressions of "cultural conflict", and "personality conflict" are more apt.

The growing literature has now established alienation in sociological and psychological vocabulary. Whatever the conceptual and psychometric shortcomings of its usage, as an explanation of observable behavior of Indians, it is a contribution to theoretical explanation of the psycho-cultural phenomenon of Indian acculturation. It is a step toward answering the need, as Mead (1960) points out, for an adequate psychological theory of the processes of cultural influence on behavior and of the nature of character, as well as for an adequate cultural theory of formation, and of the way in which individual behavior is to be referred to a cultural and societal base.

A third observation concerns the fact of the White dominant culture. Because of its size and relative permanence, it must be considered. For perspective in the use of the Bryde theory of alienation, one should be aware of whether one's own viewpoint is from within the minority looking out, as it were, or whether it is from within the dominant culture looking in on the minority.

In terms of White cultural values, it can be said that the Indian, objectively speaking, is at least alien to, if not alienated from White society (Fisher, 1968). Within his own society he may well be tending towards self-alienation, or in terms of his own culture,

he may not be on an alienation trend. Western ethnocentrism inclines one to regard any Indian behavior that is different from White behavior as being deviant. Such a view is not necessarily justified, simply because the Indian does not share White values. It is felt that "Indian behavior" presents currently a continuum, the limits of which on the one hand would be between what Macgregor (1955) referred to as a negative and crippling situation, and on the other hand to what Erikson (1939) indicated as the possibility of a relatively rich and spontaneous existence within the limits of poverty and general listlessness.

The Bryde-Spilka explanation, finally, while global, is still to be regarded as a first major contribution to the behavioral problems prevalent in Indian education. Their effort needs follow-up, verification and extension. It is in light of this that in a later chapter, the statement of purpose, the definitions, the assumptions and hypotheses underlying this investigation of Blood and Cree students are formulated.

c. The Blood and Cree Indians

There is a remarkable and regrettable paucity of literature concerning both tribes, especially with regard to the early history of each. The apparent absence of reports makes it very difficult to establish in behavioral terms what were the personality characteristics of each tribe prior to and for some years following White appearance and intervention.

Mandelbaum's (1949) analysis of the Plains' Cree focusses on

material culture. Roy et al. (1970) indicate a growing pattern of mental disorder among some Saskatchewan Cree groups. Goldfrank's (1945) monograph on Blood Indians is a study of the changing configurations in the social organization of that tribe. Unfortunately, her description does not present specific details about the psychological behavior of the Bloods. At the most, she presents a general description. The Bloods were considered to be competitive and rivalrous (1945, p. 8). Fisher (1965, p. 9) makes a similar claim, and in addition underscores the remarkable degree of social tolerance exhibited by Bloods.

Goldfrank (1945) also affirmed that the Northern Blackfoot, who are the present-day Canadian Blackfoot, were very similar to the Blood in their personality traits. The Hanks (1950, pp. 3 - 5) state that the Canadian Blackfoot were a ". . . proud and pugnacious people . . .", and that within the tribe mutual kindness and generosity were imperatives. Maslow and Honigmann (1947) say that the Canadian Blackfoot, prior to World War II, were characterized by strong syndromes of security and self-esteem.

It would seem however that the basic shared characteristic patterns have appreciably weakened during the 20 year period following the Goldfrank, Hanks, and Maslow and Honigmann studies. A four year experience amongst the Blood and Blackfoot, and 18 months amongst the Cree, have brought the present investigator to believe that deterioration is the situation.

Fisher (1970) affirms that investigations by Goldfrank, Hanks, and Maslow and Honigmann, are highly biased because of the sampling

procedures that were employed. Members interviewed from the respective tribes were chosen from only two or three bands out of a possible ten or twelve in each tribe. That such happened was not perceived by the investigating parties at the time of their field work. As a result and with regard to the general personality characteristics of the Blood, the most that can be concluded is that the report observations, while interesting, remain uncertain.

For our purposes, investigations of the effects of child-rearing practices, and of Blood and Cree overt and covert attitudes and behavior would have been most pertinent. At the most, one can only tentatively suggest that in the case of the Blood, the tribal culture tended to produce a strong, competitive type of personality. With greater caution, with reference to the Cree, given their plains' background, one may suggest that Crees have similar personality characteristics. The present study may favor more specific inferences pertinent to Blood and Cree personality configurations.

C. Educational Failure

The discussions of acculturation and alienation in previous sections appear to indicate that there are basic elements which tend to converge, thereby inducing a state of alienation, and which, in the case of Indian students, ostensibly manifests itself in educational conflict and failure. As Spilka stresses:

Authoritarian practices, competition, individual achievement are all fractionating of social relationships, kindness, cooperation, and generosity, or so they are viewed by the Sioux people, hence the ensuing conflict within the children

becomes a significant contributor to the high drop-out rates and achievement reductions. The resultant mediating psychological state is alienation, and it is hypothesized that this can be shown to reflect these psycho-social conflicts (1964, P. 7).

There is an absence of information here again bearing directly on the concept of alienation relative to educational achievement and the early life experiences of Indian children. The preceding quote however does help to define the problem. To draw the focus more clearly, a reference to studies on Indian intelligence and to some statistics on Western Canadian Plains' Indians will be useful.

Studies of the intellectual abilities of the Blood and the Cree do not seem to be available. It is assumed that Blood and Cree ability is similar to that of other North American Indians. Bryde (1966, pp. 39-42) and Couture (1965) have both reviewed the available studies of Amerindian intelligence (cf. Arthur, 1941; Bryde, Van Doornick, Elkind and Spilka, 1965; Coombs, Kron and Collister, 1958; Dennis, 1942; Eells et al., 1951; Fitzgerald and Ludeman, 1926; Garth, Serafini and Dutton, 1925; Garth, Shuelke and Abell, 1927, Havighurst and Hilkevich, 1944; Havighurst et al., 1946; Havighurst and Neugarten, 1955; Hunter and Sommermeir, 1922; Hanson, 1937; Jamieson and Sandiford, 1928; MacArthur, 1962, 1965, 1968; Kluckhohn and Leighton, 1960; Norman and Midkiff, 1955; Peters, 1963; Renaud, 1958; Rohrer, 1942; Shuey, 1958; Teleford, 1932; Teleford, 1938).

All of these studies tend to conclude that lower I.Q. scores among Indians are due to cultural and/or psychological variables and not to genetic weakness. Havighurst (1957) maintains that the explanation lies solely in motivation. It should be noted that the

exclusion of genetic factors is unwarranted. The importance of cultural variables is rightfully underscored; however, it must remain an open question, pending data, as to whether genetic influence is not possible. It may well be that some intellectual abilities are highly influenced by evolutionary selection, just as are some physiological variables (MacArthur, 1968b).

The evidence pointing to lower I.Q. scores leads one to expect less achievement and to anticipate drops in achievement and intelligence with age increase. The relevant studies bear out this prediction (Bryde, 1966, p. 42; Spilka, 1964, p. 1; Spilka and Bryde, 1965, p. 9). With regard to the general problem of Indian academic achievement, the reader is referred to Cowen, 1943; Goodenough, 1926; Havighurst, 1957; Hayser, 1963; Lloyd, 1961, Quimbey, 1963; Renaud, 1958; Rist, 1962; Roessel, 1962; Rowe, 1941; Safar, 1964; Thompson, 1963; Townsend, 1963; Turner and Penfold, 1952; Witherspoon, 1962. Further profitable reading is to be found in studies on Sioux scholastic achievement: Artichoker, 1958; Bollinger, 1961; Coombs et al., 1958; Deissler, 1962; Fey and McNickle, 1959; Galuzzi, 1960; Havighurst and neugarten, 1955; Johnson, 1963; Kizer, 1940; Krush et al., 1961; Peterson, 1948; Ross, 1962; Spilka and Bryde, 1964.

It would seem that such findings need to be complemented by the investigations of 'culturally deprived' children. It has been found that they as well not only score low in achievement and intelligence measures, but as they grow older the drop increases (Decter, 1964; Ludeman, 1930; Sherman and Key, 1932; Skeels and Fillmore,

1937; Thorndike, 1940). Such a comparison suggests that the alienation-achievement problem of the Indian is not an exclusive Indian characteristic.

The only available statistical evidence concerning Southern and Central Alberta Indian scholastic achievement is based on records from the Ermineskin (Cree), Crowfoot (Blackfoot), and St. Mary's (Blood) Indian schools (Couture, 1968a, 1968b). Compiled in the form of line graphs, a relative pattern of decrease in achievement with increasing age and grade, particularly at the Junior High level, is apparent (see Figures 2, 3, 4, 5, 6), a pattern which is basically similar to that demonstrated by Bryde (1966, p. 38; see Figure 1).

In summary, the little available research regarding Alberta Indian student intelligence and achievement, indicates that there is a tendency toward lower scores with increase in age and grade on measures in these two areas. It is assumed, pending investigation, that this trend begins at an early age, possibly at the grade one level. Current evidence corroborates Bryde's statements (1966, p. 31) that this tendency appears to become the most acute at the Junior High school level. Very notably this trend, on a national basis continues through to the grade 12 level as manifest by an extremely high dropout rate of 90 per cent (Hawthorn, 1967). The hypothesized reason for this distressing pattern centers around the belief that an alienation syndrome, a complex of personality traits, becomes the most pronounced at around the grade seven-eight level. Refinements of

this view are brought forth in the succeeding chapters of this investigation.

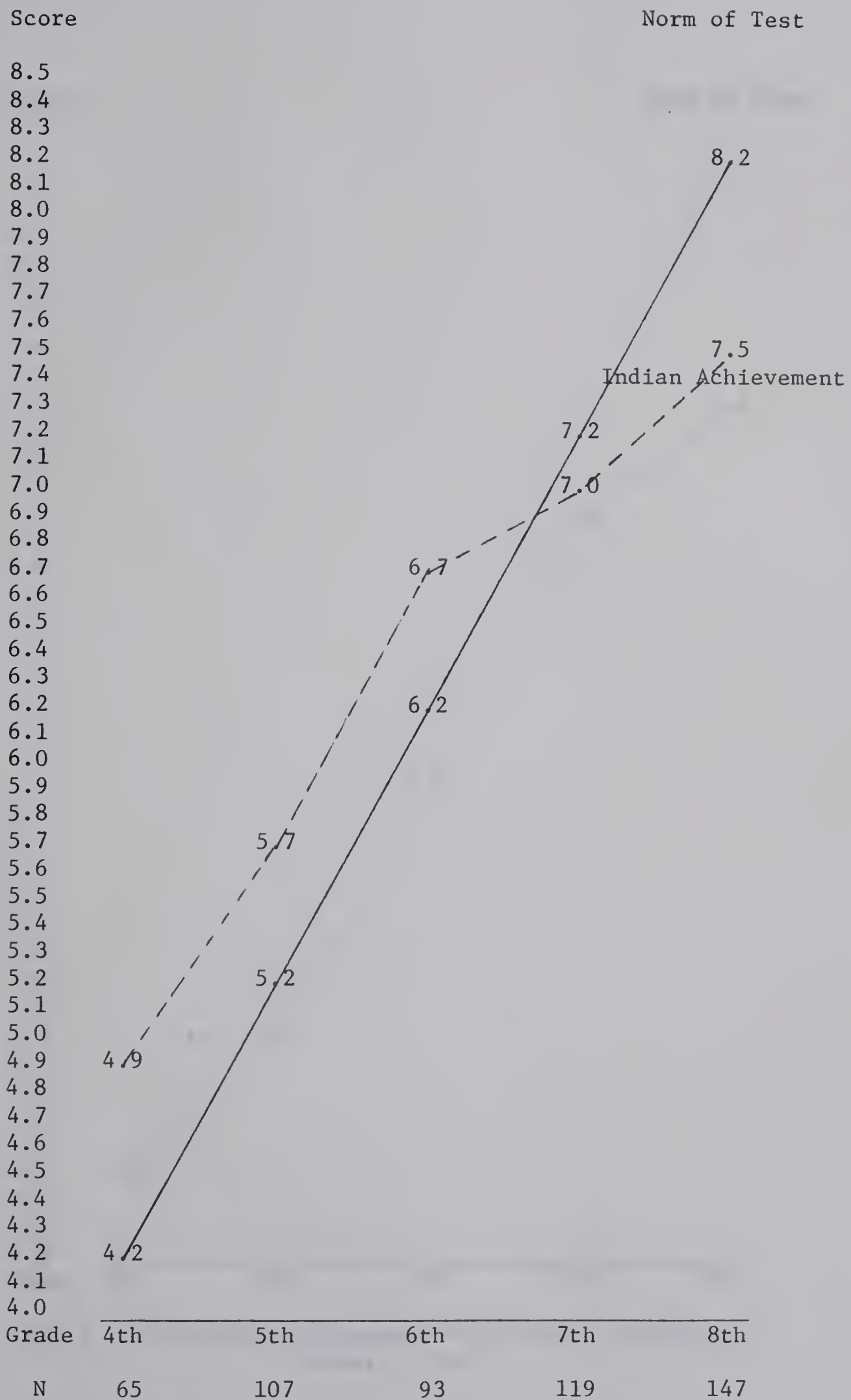


Fig. 1. California Achievement Test Scores of Indian Eighth Grade Students (Bryde, 1966, p. 38)

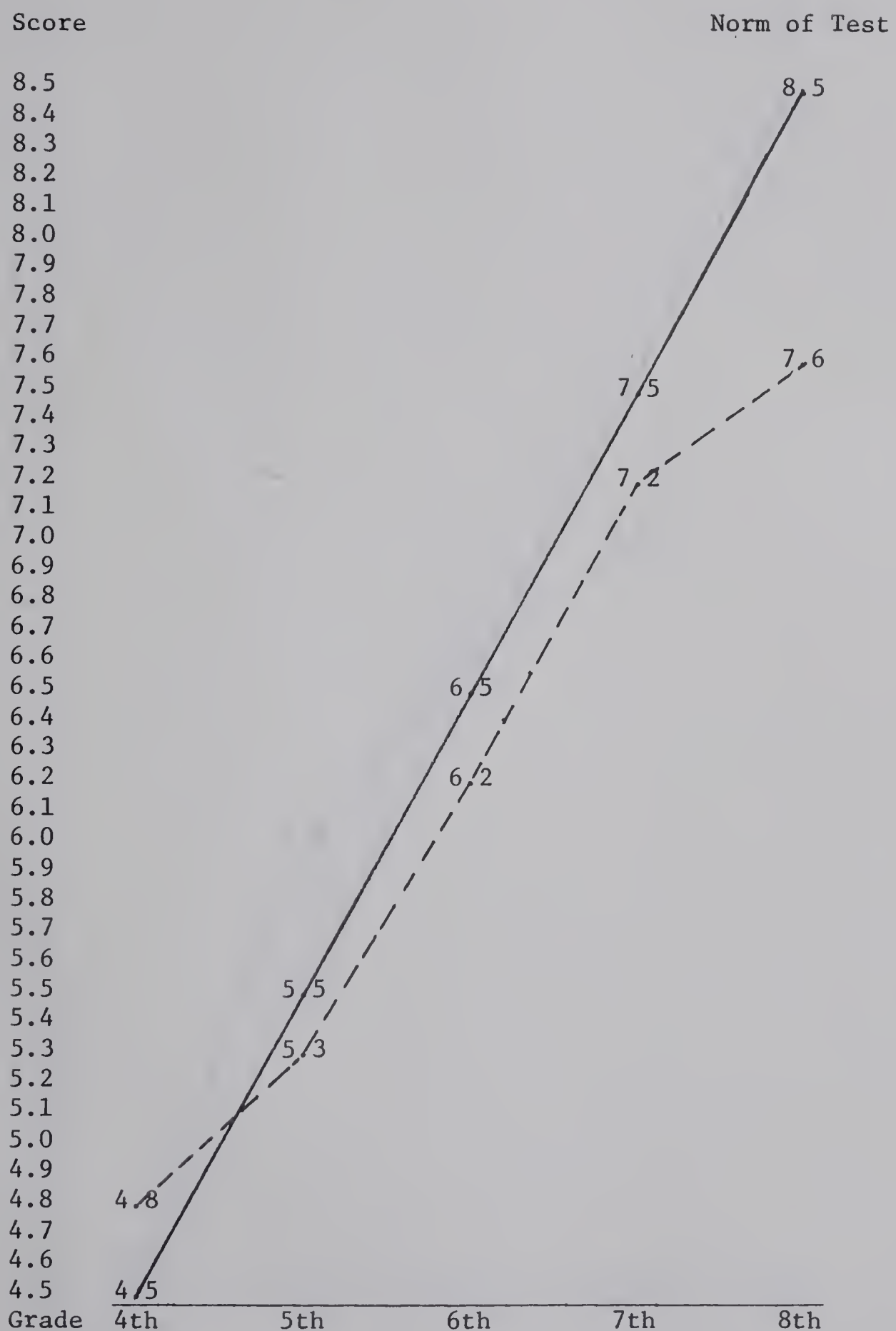


Fig. 2. California Achievement Test Scores, Blackfoot, January, 1963

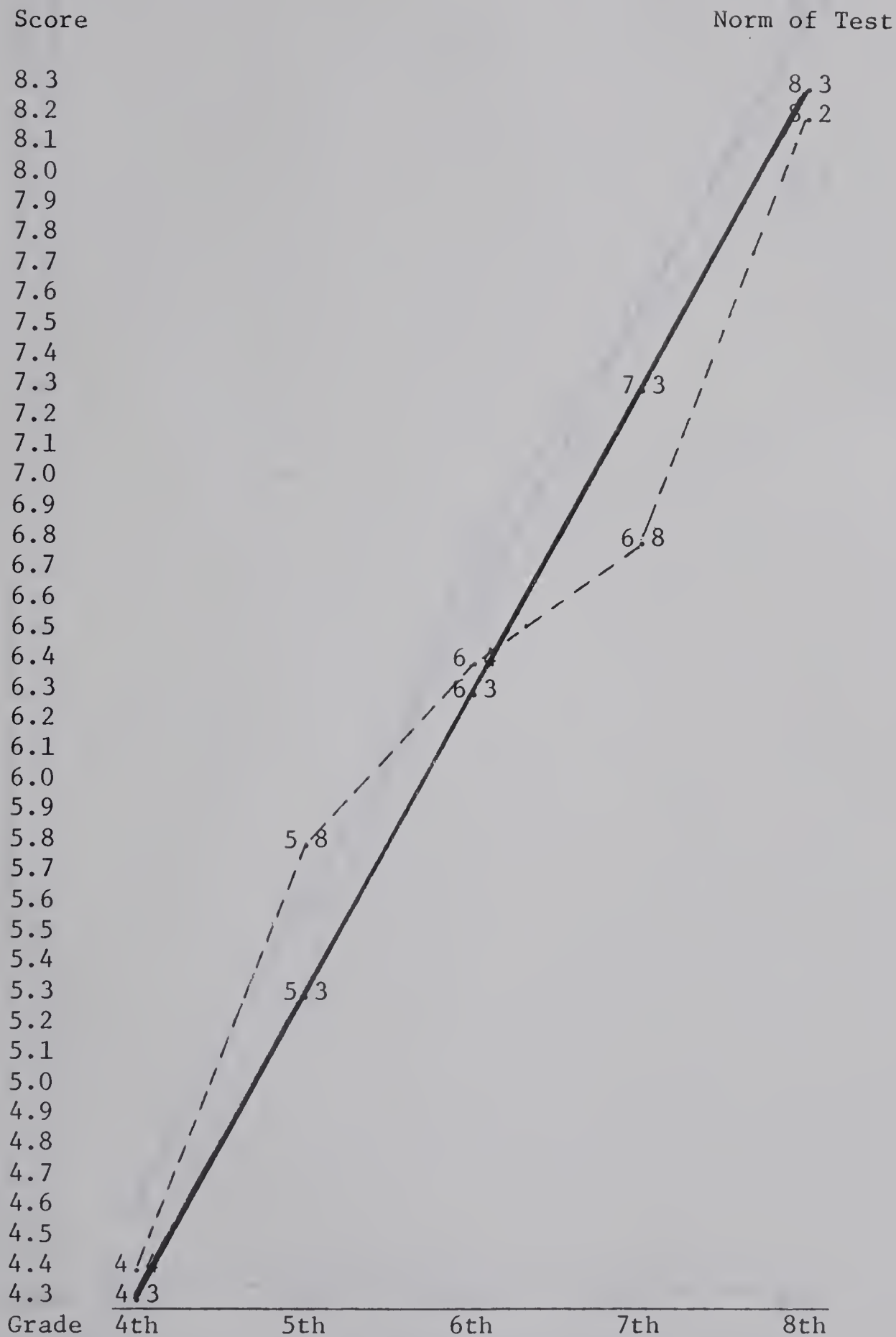


Fig. 3. California Achievement Test Scores, Cree, November, 1963

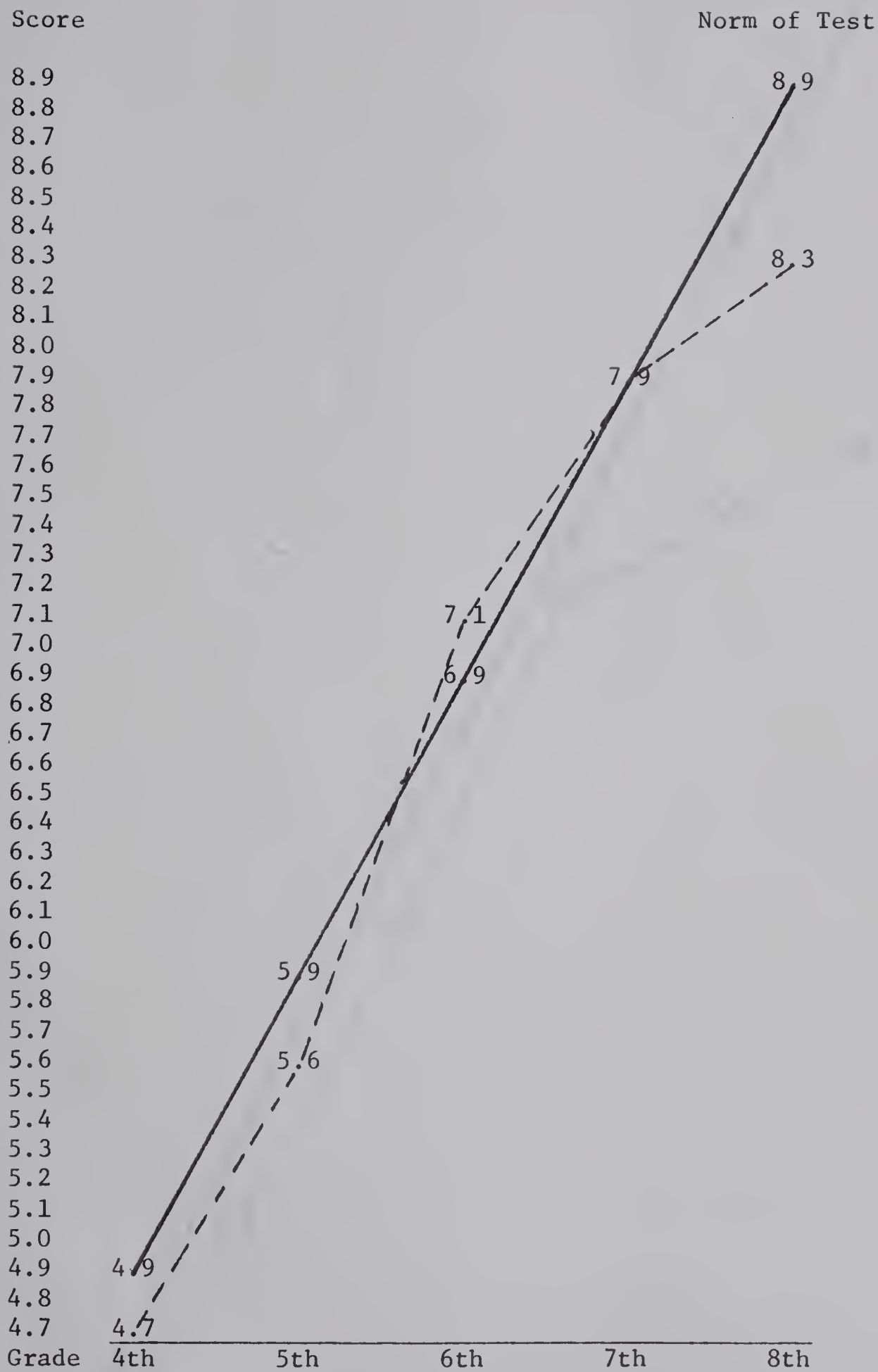


Fig. 4. Iowa Test of Basic Skills Scores, Blood,
Same Group, May, 1962-1966

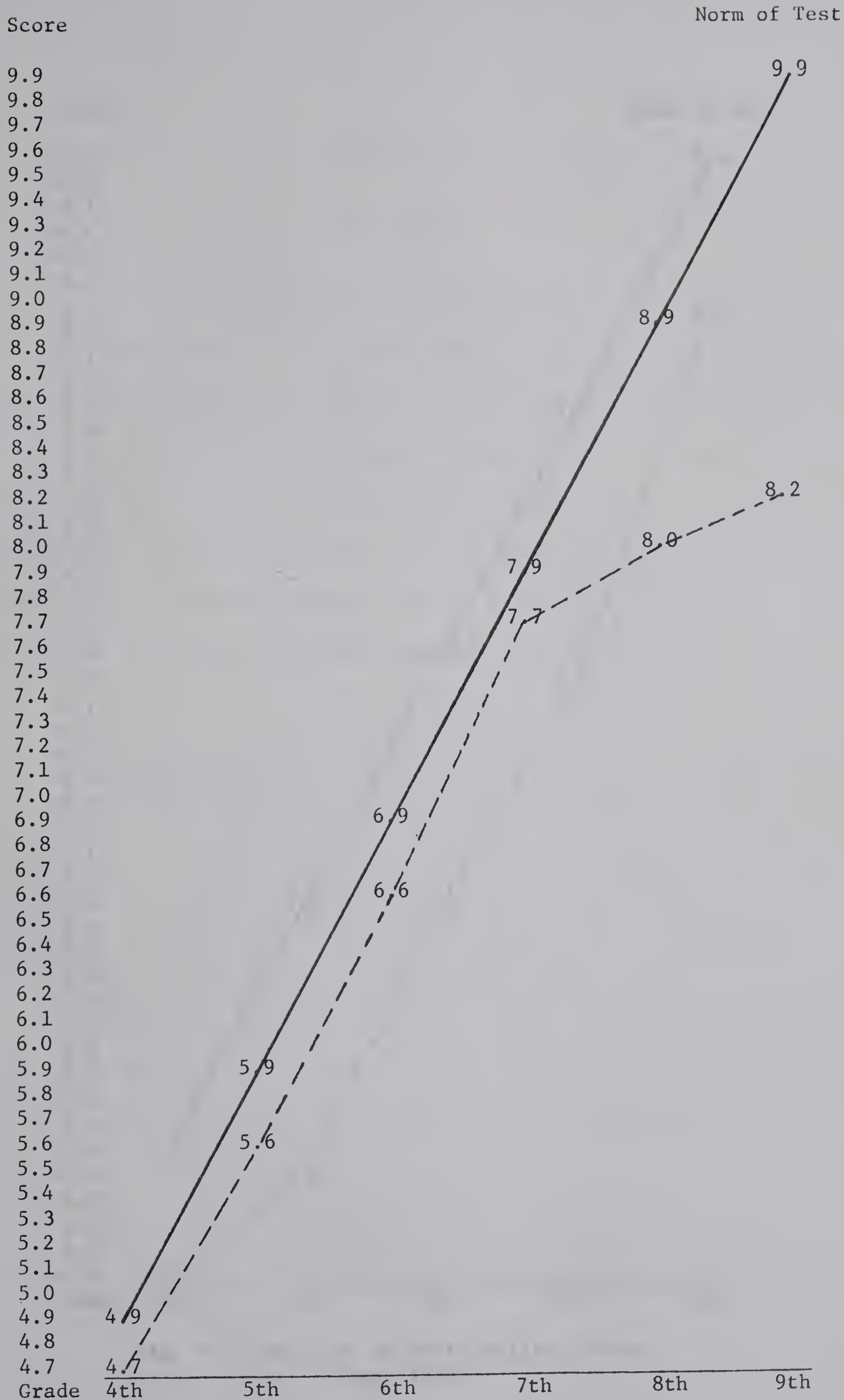


Fig. 5. Iowa Test of Basic Skills Scores, Blood,
May, 1963

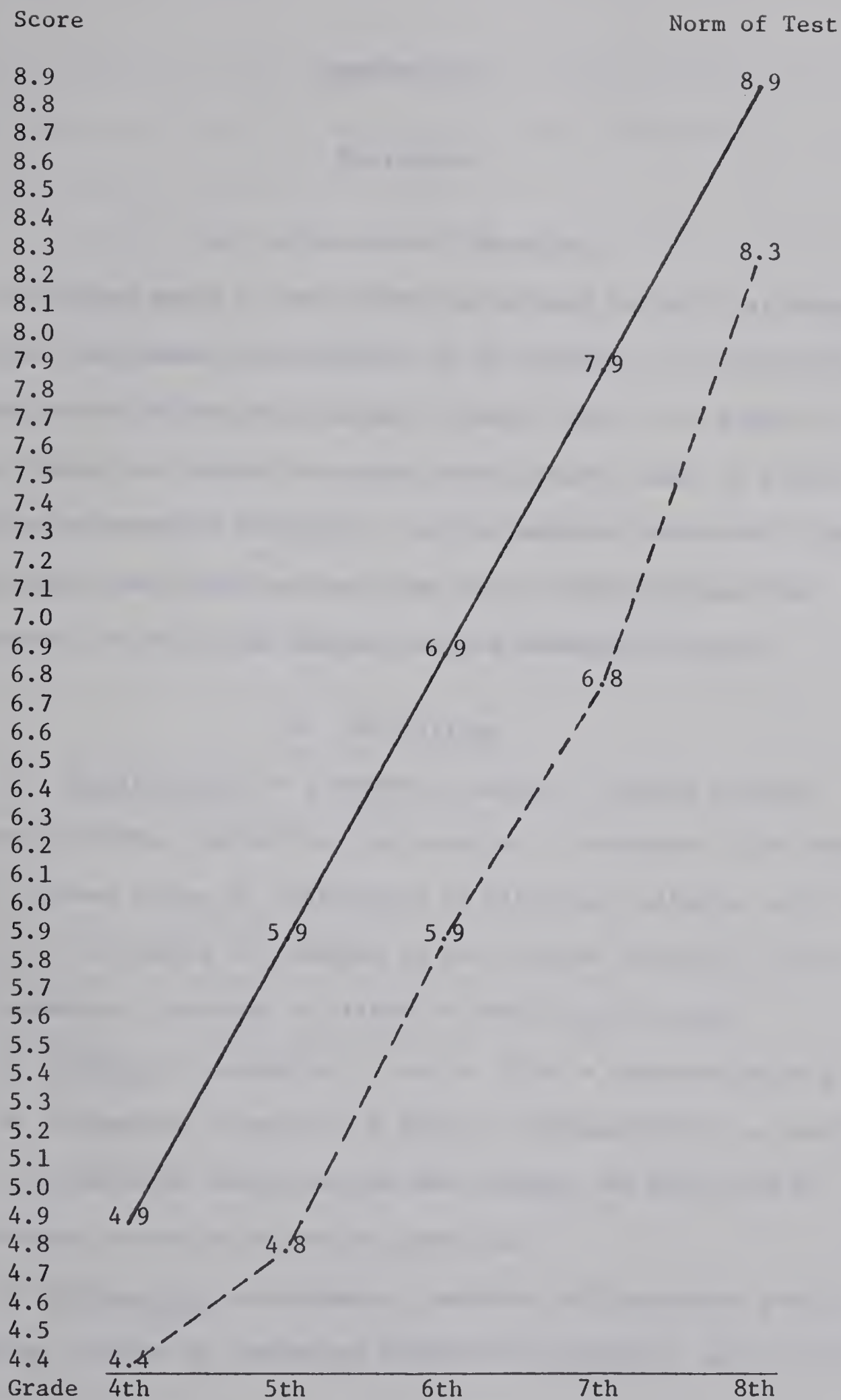


Fig. 6. Iowa Test of Basic Skills, Blood,
May, 1966

CHAPTER III

Rationale

A. Objectives of the Study

The broad goals of this study, as defined in the first chapter, state that the present investigation is an attempt to determine what similarities and differences emerge, through time, for a sample of Bloods, Crees, and Whites, in grades seven, eight, nine, on a wide variety of personality variables. As the immediate conceptual framework to this study, and which derives from the preceding analyses and discussions, the following definitions and assumptions stand.

B. Definitions

1. Acculturation is a dynamic, complex, on-going process. The component phenomena thereof are the results of continuous first-hand contact between groups of individuals of different cultures, with this contact in turn making for changes in the original material culture and/or behavioral patterns of either or both contact groups.

2. Culture is normative, a way of life, a characteristic group manner of responding to needs of a group. This adaptivity is something which is transmitted, which can and does change, and which can be improved upon, or which can become inhibited.

3. Personality is a dynamic, reactive and responsive product - a resultant complex of consistent behavioral patterns or sets, of the

partially unique relationship between each individual and his culture. Modification in the culture will usually entail modification in the patterned and/or individual response.

4. Alienation is a multi-dimensional and global type of group or individual feeling. The multi-dimensionality, which is variant, may be referred to as an alienation pattern or set. It has such subjective dimensions as powerlessness, normlessness, depression, self-estrangement, and objective correlates such as social isolation, rejection. It occurs whenever the process of cultural change is inhibiting, resulting in unsatisfied group or individual needs. It varyingly influences the degree of relatedness, whether it be intra-personally or inter-personally. It is a behavioral dysfunction to some degree, manifesting itself in social and economic relationships, and can ultimately lead to profound inner discomfort for those involved.

5. Educational attainment or scholastic achievement is, according to predetermined standards, the degree of success as measured by standardized and non-standardized tests of classroom achievement.

C. Assumptions - Psycho-social Context

Complementary to the above definitions, and serving equally as the immediate conceptual context to the present study, several psycho-social features are assumed to be true of Indian existence. Further to these, it is also assumed that some cross-cultural measurement is quite possible.

1. There are ascertainable correlates of the observed decline in

relative achievement of Indian junior high school students, and these are at least partly of an order other than strictly intellectual. Further, these are other than the usual White adolescent conflicts, since in general, White students of the same ages do not demonstrate similar declines in achievement (Bryde, 1966, p. 52).

2. While Indian culture generally has always been dependent on external non-social factors, e.g. for purposes of hunting and fishing, there were and are specific Indian cultures. The advent of white culture has had the effect of bringing Indian cultures from a state largely of self-sufficiency to one characterized by a relatively high degree of symbiotic dependence. For the most part, in varying degrees, new and usually conflicting cultural and behavioral patterns have been forced on the Indian.

In such a situation the individual Indian, and the group of which he is a member, has tended to use behavior that is congruent with prevailing tribal values. At the same time, and, for example, in the case of the Blood Indians, the traditional response patterns of physical bravery, generosity, and individual autonomy have been modified by changes in ecological and economic conditions. Conceivably, these traditional patterns can, and probably do in fact, re-emerge in new behavioral modes which are "Indian". That process notwithstanding, in reference to white culture, the Indian who attempts to meet white norms with his Indian value meets with frequent if not constant frustration. In terms of his own culture, he may or may not experience such inner conflict.

3. White ethnocentrism tends with remarkable consistency to demand white behavior of the Indian, despite the fact that the Indian does not share western values. Whites tend to regard most Indian behavior as different from their own, and is therefore largely unacceptable. From the point of view of conflict of values, a basic example of confusion leading to conflict would be between white ideas of individualism and striving for economic success on the one hand, and the Indian manner of competition and striving on the other.

4. One of the results of impinging white culture on Indian societies of the Plains, has been the atomization of such societies to some degree, possibly bringing about the alienation of numbers of individual society members. This does not necessarily imply that the Indian is alienated from himself or his community. Such an implication would depend upon the accurate identification of the individual's reference group as being Indian, White, or both. Whether the Indian is "marginal", or "between two cultures", or has his own viable culture, or is bicultural, may be a matter of point of view, or of which Indian group he belongs to.

The position taken here is that the Indians are not between two cultures, but that various Indian groups are on an evolutionary continuum. That these groups are changing is normal expectation. That most Indian groups are experiencing considerable difficulty in the process is considered to be a primary research issue. Research reveals that there is a long lasting retention of values and attitudes parallel to the concrete changes taking place in Indian cultures. There

are a number of areas where these tend to be felt, e.g. as provoked by institutional intolerance, or as manifest in conflict between an institution and the individual.

Thus on the one hand, culturally speaking, the situation is one of strains and stresses attendant to culture contact, while on the other hand, psychologically speaking, it is one of the impact of new demands on Indian personality. In relation to the dominant white culture the Indian might be referred to as at least alien to it, sometimes alienated from it. Being outside the white majority group does not imply alienation as such. In situations where culture conflict prevents the expression of a traditional pattern of values in aspects of living which are motivationally important to the Indian, signs of self-alienation may appear. An example would be: when the only available jobs or work require the Indian to leave his reserve, this can lead to conflict between, on the one hand, the expression of the need to work and maintain himself, and, on the other hand, the traditional values of family life, closeness to community, the hunting orientation of the group. In other situations of cultural conflict a parallelism in terms of solution may be developed which would enable the Indian to preserve the older values in the service of a new pattern, or a new need.

D. Hypotheses

On the basis of the above definitions and assumptions, the general hypothesis of this study is that the personality configurations of the Cree, Blood and White junior high school students change.

More specifically:

The configuration of personality variables is different for the Indian students as compared with that of Whites.

1. With increase in grade level the pattern of variables moves into an alienation set within the Indian groups.
2. This pattern is different from that which appears for the White group.
3. For a sub-group of Blood students, for whom longitudinal data exists, no change in personality configuration trend is observable.

CHAPTER IV

Method - Subjects, Measurement

As stated, this investigation is intended to replicate and extend the Bryde Study. As in the Bryde Study, both Indian-White junior high school students were measured. In the present study the Indian sample is composed of Cree and Blood students. The characteristics of these groups are described under the heading of Subjects. Scale selection, problems of reliability and validity, with special attention to their cross-cultural application, and relevance of the various scales to the alienation rationale, are attended to in the second sub-division on Measurement.

A. Subjects

Sex, grade, and 29 Minnesota Multiphasic Personality Inventory (MMPI) scales, data, were obtained for several groups of subjects. The groups with the corresponding N are indicated in Table 1.

The Cree Sample comprises virtually all of the Ermineskin junior high school students for the 1967 academic year. Few, if any, of this tribe were in attendance at white schools at the time. Practically all Blood students for the 1968 school year were measured. The Blood Sample is made up of three groups: St. Mary's Indian School 1968; St. Mary's Indian School 1969; and Off-Reserve Bloods 1968. The 100 Whites were chosen randomly from a population of 643. These Whites were the classmates of the Off-Reserve Bloods, located in four southern Alberta

TABLE 1
Subject Distribution

Groups	N
Cree	127
Blood:	
St. Mary's 1968	70
Off-Reserve 1968	92
St. Mary's 1969	82

schools, Lethbridge Catholic Central High, Magrath Junior High, Cardston Junior High, MacLeod Junior High. The investigation did not include senior high school students, as did the Bryde Survey (1966), simply for want of significant numbers of Blood and Cree students in the senior grades for the 1967-1969 period. All of the Blood junior high pupils at St. Mary's, Blood Reserve, were retested in 1969 in order to permit some longitudinal comparisons.

B. Measurement

The choice of the MMPI was dictated by the replication design. However, its use requires some discussion. In the following paragraphs, the addition of 14 scales to the standard 14 is explained. The problem of the reliability and validity of the MMPI scales as a personality index is examined. Cross-cultural application of these scales to Indian subjects is analyzed in light of the critical issue of validity.

And finally, the question of the scales as constructs is related to that of this study's alienation definition.

1. The MMPI Scales

The MMPI was administered to all subjects. The usual 14 scales were augmented, in the Bryde manner, by 14 others drawn from the Dana Compendium (1956): Anxiety (A); Repression (R); Achievement Need (Ac); Ego Strength (Es); Dependency (Dy); Subjective Depression (D1); Mental Dullness (B4); Need for Affection and Reinforcement from Others (Hy2); Authority Conflict (pd2); Social Alienation Pd4a); Self-Alienation (Pd4b); Ideas of External Influence (Pal); Social Alienation (Scla); Emotional Alienation (Sc1b). To these 14, and from the same Compendium, the Prejudice (Pr) scale was added. The choice was made on the basis of its defined global, multi-faceted nature, in the hope of it having appreciable discriminatory power.

Full descriptions of these scales are found in Appendix A. These definitions are based on the Dana Compendium (1956), Hathaway and McKinley (1951), Hathaway and Meehl (1951), Hathaway and Monachesi (1956), Welsh and Dahlstrom (1956), and Dahlstrom and Welsh (1965). Summaries of these scales were formulated as follows:

1. L - Lie: falsification of scores through choosing most socially acceptable responses; defensiveness.
2. F - Validity: carelessness; lack of comprehension; scoring error; self-criticism.
3. K - Distortion: indicative of test-taking attitude; defensiveness; reluctance to self-disclose.
4. Hs - Hypochondriasis: tiredness; inactivity; lethargy; feelings of physical illness; undue concern over health, body functions, appearance.

5. D - Depression: complex symptom - lack of self-confidence, tendency to worry, narrowness of interests; introversion.
6. Hy - Hysteria: idealism; naivete; articulateness; self-dissatisfaction; need for social acceptance.
7. Pd - Psychopathic Deviation: rebelliousness; cynicism; disregard for rules; social aggressiveness; selfishness; shallow emotional response.
8. MfM - Masculinity Tendency: trend towards masculinity in sexual social behavior.
9. MfF - Femininity Tendency: trend towards femininity in sexual social behavior.
10. Pa - Paranoia: perfectionism; stubbornness; hard to know; oversensitivity; suspiciousness; feelings of being supervised too closely.
11. Pt - Psychasthenia: obsessive-compulsive syndrome; dependence; desirous to please; feelings of inferiority, personal or social - central trait; apprehensiveness, tension.
12. Sc - Schizophrenia: negative, constrained; difficult; odd; apathetic or indifferent; lacking in social grace; secretiveness.
13. Ma - Hypomania: expansiveness; over-optimism; decisiveness; quick loss of interest; not bound by cynicism.
14. Si - Social Withdrawal: unassertiveness; feelings of social inadequacy; self-consciousness.
15. A - Anxiety: generalized feelings of insecurity; lack of confidence in own abilities; complaint of inefficient functioning.
16. R - Repression: feelings of being excluded, held back by circumstances; lack of effective self-insight.
17. Ac - Achievement Need: impulsive tendency of non-achieving student; over-dependence on others.
18. Es - Ego Strength: sense of personal adaptability and resourcefulness, or lack thereof; absence of sense of integration characterized by inhibition, anxiety, submissiveness, and repression.
19. Dy - Dependency: excessive reliance on others.
20. D1 - Subjective Depression: Poor morale; low self-esteem; lack of energy in coping with problems.

21. D4 - Mental Dullness: unresponsiveness; distrust of one's own psychological functioning.
22. Hy2 - Affection Need: obtuse denial of resentful attitude toward others; overly protested faith and optimism in other people; manipulative; over-striving for emotional support and reinforcement.
23. Pd2 - Authority Conflict: resentment of societal demands and standards.
24. Pd4a - Social Alienation: feelings of isolation from others; lack of belongingness.
25. Pd4b - Self Alienation: lack of self-integration; guilty; dependency.
26. Pal - External Influence: externalization of blame for personal problems, frustrations and failures.
27. Scla - Lack of Rapport: lack of meaningful relationships with others.
28. Sc1b - Emotional Alienation: lack of rapport with self, general apathy; flattening of affect.
29. Pr - Prejudice: distrust; cynicism; rigid; dogmatic; lack of confidence in self, or others.

2. Validity and reliability

There is an extraordinary abundance of literature on the MMPI indicating it to be a well-established tool (Campbell, 1963). Buros (1959, 1965) presents over a dozen pages of bibliography which highlight its extensive usage, e.g. Benton, Eysenck, in Buros (1959); Ellis, Norman, in Buros (1965); see also Hathaway and Meehl (1951), Hathaway and Monachesi (1963), Rotter (1960). It is also clearly indicated in the literature that personality inventories presently at their best can but describe a general syndrome, a result which, in turn, can be

not more than a first step towards more definitive research (Adams, 1964; Cottle, 1968; Hathaway and Monachesi, 1963; Little, 1964).

Research based on the use of the MMPI self-report is limited to presenting a survey-type of description, a broad diagnosis of behavioral trends, second-round hypotheses to be checked out by subsequent methods (Anastasi, 1963; Benton, 1953).

Given this limited potential of the MMPI, for purposes of this study validity has been deemed sufficient, notwithstanding the fact of its cross-cultural application. The stated objective of this analysis is to describe any trends of change in personality configuration that occur over time. The stated validity of the MMPI is that of criterion-relatedness, validity relative to a given end (Adcock, 1965, p. 313). Traditional psychiatric categories still serve as criteria. MMPI data do serve to discriminate between normal and abnormal groups (Adcock, 1965; Anastasi, 1968; Anderson and Thomason, 1967), and the MMPI is better than average for this purpose (Ellis, 1957; Lingo, 1965; Meehl and Hathaway, 1946).

Another advantage of the MMPI lies in its large pool of items. This large number of scaled items allows for the emergence of new patterns of behavior, of discerning new grouping patterns in the responses which can depict various kinds of personality (Cronbach, 1960, p. 474). This possibility suggests the use of comparative principal component analyses across cultures.

The MMPI Manual (Hathaway and McKinley, 1951) is seriously

inadequate on a number of points, e.g. no information is given with regard to the inter-correlations among the scales; no relationships with other personality measures is reported; no coefficients concerning internal consistency of the items is presented; no indication of the number of general factors tapped by the several empirically derived scales is shown; nor is there any detailed predictive and concurrent validity information; and finally, the Manual is wanting in reporting empirical and construct validities (see Norman, 1965).

The validity that the Manual does discuss is with reference to "truthfulness" of response, the problem of "faking" good or bad (p. 18). The three scales of L, F, and K, have been derived by their authors to serve as indicators of the degree of this tendency. Seven or more for the L scale, and 17 or more for the F scale, are the designated cut-off scores (p. 23). Scores higher than either are to be regarded as indicative of very significant deviations which require interpretation. However, usage of the MMPI strongly suggests flexibility in this regard (Cottle, 1968, p. 88; Hathaway and Monachesi, 1963, p. 26). The latter study indicates cut-off levels of nine or more on the L scale, and 26 or more on the F scale. There is some argument as to whether the F scale may be regarded as a validation scale, as claimed by the Manual. Comrey (1958, p. 631) contends that F is more of an abnormal scale, and not a very good one at that.

In this study the 9-26 cut-off standard has been applied. The numbers of Blood students in grades seven, eight, and nine, for instance, exceeding nine on the L scale, was found to be six out of

total N of 222. The same proportion was found to hold for the Cree and White samples. Bryde (1967, 1968), with reference to the Arthur Study (1945), reports that the L, F, and K scales do not reveal any significant differences which would indicate invalidity of results of cross-cultural application of the MMPI. A comparison of the means, expressed in raw score forms, and standard deviations of grade nine students, drawn from the Hathaway and Monachesi, Bryde, and Couture (1972) samples, presents comparable similarities through the scales, and thus thereby lends considerable support to Bryde's conclusion (see Table 2; means and standard deviations for all grades are found in Appendix B). Bryde maintains that Indian pupil responses were made with reference to their own group with consistence, particularly on items pertaining to various aspects of alienation. His contention is assumed to apply to this investigation.

While the MMPI is based on psychiatric constructs descriptive of abnormal behavior, and was initially devised to discriminate abnormality and was validated on a group of mentally ill adults of ages 16 and over, it has been extensively used with normal populations. For our purposes the most relevant study is that of Hathaway and Monachesi (1963) which analyzed 15,000 white pupils in grade nine, of age range 13 to 19 years. This five year longitudinal study shows a clear relationship between undesirable social behavior and environmental variables such as low socio-economic status and unstable homes (p. 14).

There has not been extensive use of the MMPI cross-culturally with North American Indians. The objection to such usage, on the basis

that response is deeply affected by the group norms and values of Indians, which are different from those prevalent in the normative group, thereby possibly invalidating the results, is serious. However, on the basis of the Bryde Study (1966) and the Grace Arthur Analysis (1945), it can be maintained that the test item responses are in relation to Indian within-group attitudes, and given the large pool of items, discernible characteristic patterns of response can and do emerge. In the Bryde analysis this is apparent with regard to the alienation scales. The Arthur investigation describes a very healthy Sioux personality. The Bryde research, some 20 years later, reveals a deterioration of that Sioux personality, suggesting thereby that there is a definite trend of change within a cultural situation of conflict. Because test scores may have different meanings across cultures, the raw sample means in this study will be examined to detect changes in patterns.

Other studies using the MMPI on subjects from other cultures, not as radically different however, from that of the dominant American culture, report no significant difference (see Goodstein, 1954; Harrison and Kass, 1968, Taft, 1957).

Reliability test-retest coefficients for all 29 scales range from .46 to .91, with a median of .76 (Cottle, 1968, p. 72) Dana, 1956; Rosen, 1966; p. 144). Generally, personality inventories do not yield a coefficient beyond the range of .70 to .80 (Cottle, 1968, p. 72). The MMPI coefficients therefore appear to be acceptable.

TABLE 2

MMPI Means and Standard Deviations, Grade Nine Level, for the Minnesota, Dakota, and Alberta Samples

Scale	Minnesota ^a		Dakota White		Alberta White		Dakota Sioux		Blood ^b		Cree	
	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.
N = 10,151		N=126		N=47		N=159		N=32		N=25		
L	3.9	2.15	3.00	1.99	3.47	2.39	4.14	2.50	3.97	2.26	4.12	2.53
F	5.6	3.98	6.89	5.21	11.79	5.37	13.26	7.07	15.38	5.76	10.28	4.11
K	13.6	4.79	11.68	4.27	11.53	4.31	10.35	4.23	9.84	4.87	14.16	6.86
Hs	12.0	8.87	12.25	4.07	7.26	4.30	15.69	4.88	8.13	4.31	10.24	4.26
D	19.0	9.76	18.83	4.52	19.64	4.54	23.20	5.21	23.69	5.80	22.40	6.32
Hy	17.0	8.46	19.08	4.66	20.19	4.87	20.55	5.07	18.78	4.39	19.68	5.24
Pd	23.0	9.79	22.88	6.58	19.64	5.72	25.13	6.42	22.00	5.44	19.88	5.76
MfM ^c	22.0	9.56	11.97	11.38	28.87	6.61	11.73	11.72	26.94	7.08	26.68	5.44
MfF			15.43	17.09	31.09	6.67	14.42	15.18	28.19	6.85	27.52	5.31
Pa	10.0	9.71	10.26	3.82	11.53	4.78	12.77	7.37	13.47	4.53	10.48	4.62
Pt	28.5	9.16	18.72	8.51	19.72	7.65	25.19	8.07	23.59	7.38	23.12	7.95
Sc	29.0	10.89	19.17	9.98	21.11	11.02	29.51	11.14	25.88	10.43	26.88	10.72
Ma	20.0	11.59	20.64	4.65	19.19	5.50	22.89	5.06	19.91	4.69	20.16	4.47
Si	28.0	9.80	30.12	8.42	31.64	7.76	35.36	6.04	35.50	5.26	31.64	5.90
A			17.09	9.15	19.55	8.01	22.40	7.14	21.31	7.13	21.12	6.79
R			14.54	4.11	14.87	4.23	15.14	4.38	16.69	4.23	14.36	4.68
Ac			13.65	3.71	14.04	2.66	14.84	3.96	14.00	2.72	13.60	4.13
Es			40.33	5.57	39.96	4.64	35.34	5.81	37.31	5.75	35.40	7.09
Dy			24.95	8.65	28.06	7.35	30.09	7.18	32.13	8.71	26.20	8.22
D1			8.28	3.92	9.64	3.63	12.48	4.42	12.41	4.01	12.16	4.62
D4			3.46	2.14	3.83	2.18	5.72	2.54	5.63	2.15	5.64	2.80

TABLE 2 (Continued)

Scale	<u>Minnesota</u>		<u>Dakota White</u>		<u>Alberta White</u>		<u>Dakota Sioux</u>		<u>Blood</u>		<u>Cree</u>	
	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.	M.	S.D.
Hy2			5.46	2.20	5.15	2.21	5.72	1.85	4.06	1.90	3.56	1.60
Pd2			4.20	1.63	5.17	1.77	3.72	2.84	5.34	1.81	4.72	1.93
Pd4a			6.40	2.94	7.23	3.27	4.64	2.87	9.41	3.54	7.76	3.18
Pd4b			4.70	2.65	5.77	3.49	8.19	2.73	7.88	3.37	7.44	3.32
Pal			2.98	2.60	4.00	3.12	7.58	3.06	6.47	3.24	5.16	2.94
Scla			5.06	3.07	6.40	3.37	5.25	3.29	8.31	3.94	7.40	3.32
Sclb			2.05	1.78	2.40	1.71	7.68	2.13	3.00	1.48	3.36	2.13

^aThe data here are the averages of the sums tabled separately under Boys and Girls, Table 22, Hathaway, 1963, p. 118. The mean scores were reconverted to raw scores, which produced round numbers for ten of the scales. The mean scores for all other groups are expressed in raw score form.

^bThe Blood Sample comprises on/off reserve students in grade nine during 1968.

^cThe scores for Mf is not separately differentiated for masculinity and femininity in Hathaway and Monachesi.

3. Relevance of the MMPI

The preceding discussion sought to establish the usefulness of the MMPI in a cross-cultural setting for purposes of establishing the fact of change or not in personality configuration. Attention now needs to be given to the pertinence of this self-report technique to the alienation rationale previously established, and secondly, present a further aid, in schema form, to the interpretation of MMPI results.

a. The MMPI and Alienation

The definition of alienation previously chosen assigns behavioral dysfunction to some degree as the essential feature. Alienation is a global type of group or individual feeling response, having such subjective dimensions as powerlessness, normlessness, depression, self-estrangement, and objective correlates such as social isolation, rejection. It is contended that the various MMPI scales provide data pointing to both dimensions. Within the limits of its criterion-related validity, the MMPI is capable of providing pertinent information bearing on the degree of relatedness, whether it be intra-personally or inter-personally. It is recognized that the obtainable data can but provide a crude picture. This is however not out of keeping with the nature of the alienation syndrome itself which is multi-faceted, global. It is also contended that each of the 29 scales employed can to a significant degree provide evidence of the level or intensity of the alienation pattern, for each points either to the intra of inter-personal dimensions, or to both.

b. Interpretation Schema

A schema, based on a revised version of the Diamond Schema (Diamond, 1957) by Dahlstrom and Welsh (1960, p. 80), is presented here to suggest an interpretation perspective. It is felt that this schema indicates various relationships between the scales, which in turn intimate the inter-intra, subjective-objective alienation dimensions referred to above. The latter feature will be of considerable use, in a later chapter, towards resolving the problem of labeling principal components.

The Diamond Schema and its subsequent revision by Dahlstrom and Welsh were defined in terms of the traditional ten MMPI scales. The proposed plan here (see Figure 7) is in terms of 29 scales. The broken line boxes with the figure are used to express conceptual overlap of construct. One major difference from the two previous lay-outs lies in the inclusion of Ego Strength, (Es) Social Withdrawal, (Si) and Anxiety (A). These three scales have been placed in the middle of the frame-work to indicate a pervasive relationship with, or presence in all dimensions of the schema. A second difference consists of including the Masculinity-Femininity scales (MfM, MfF) as special instances of the Psychopathic Deviation (Pd) scale. Finally, the three validity scales have been inserted at the top of and outside of the schema to indicate primarily that they have a bearing on all of the scales. Each of these three scales (L, F, K) also serve as emotion indices.

Paraphrasing the discussion made by Dahlstrom and Welsh of the Diamond Schema, several explanatory remarks are required. Looking

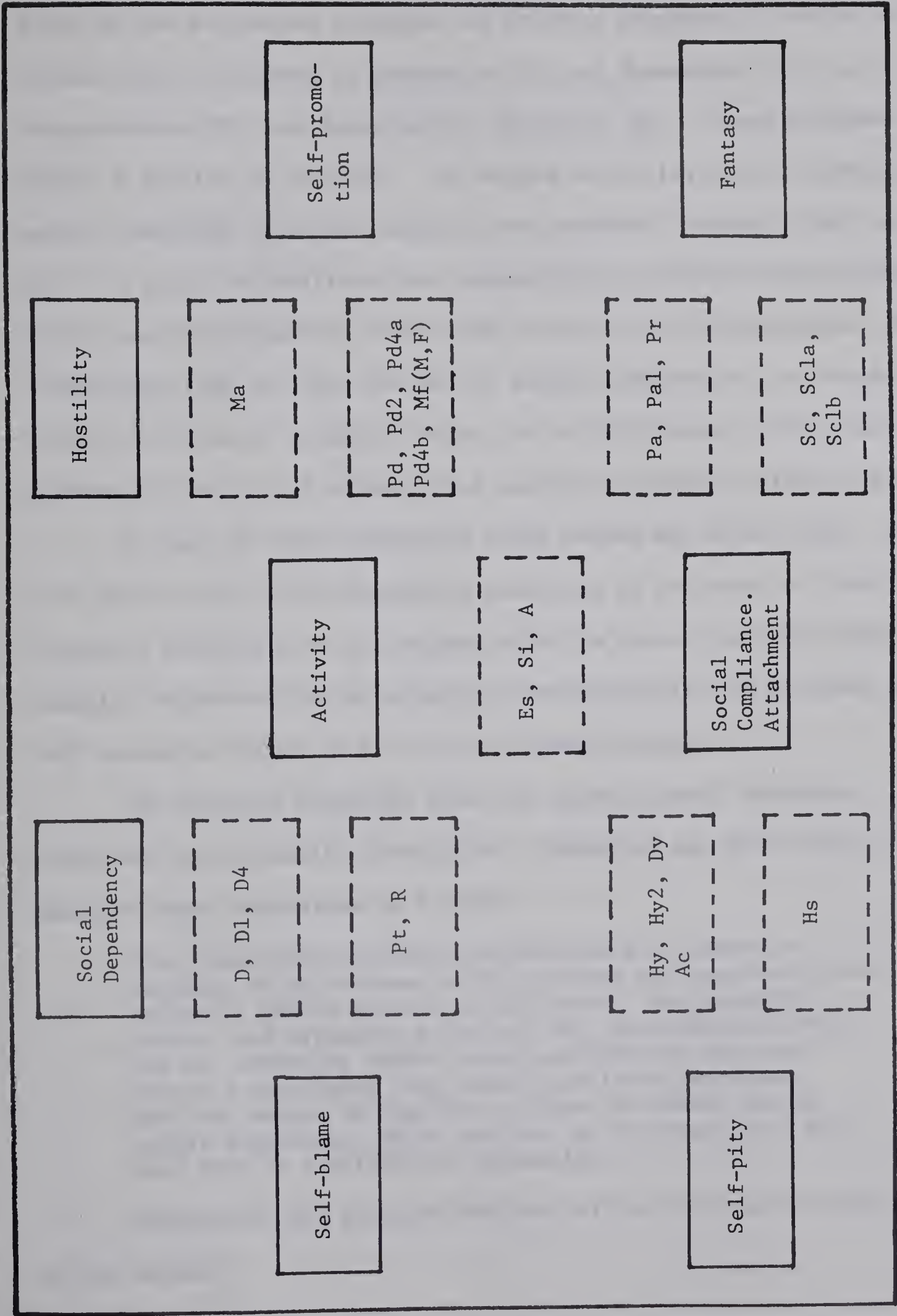


Fig. 7. Schema of psychological dimensions appearing in the criteria of the MMPI scales (adapted from Dahlstrom and Welsh, 1960, p. 80).

first at the horizontal pairings, an activity dimension is reflected in two sets of extremes by depression (D) and Hypomania (Ma), and by Psychasthenia (Pt) and Psychopathic Deviation (Pd). These extremes define a quality of activity. The second set of horizontal pairings assign qualities of social compliance-attachment. Hysteria (Hy) is one end of a social friendliness and suggestibility continuum while Paranoia (Pa) treats with opposite attributes of hostility and negativism. Hypochondriasis (Hs) reflects the use of somatic symptoms to tie others to oneself by means of emotional bonds, while Schizophrenia (Sc) deals with withdrawal from social contacts and seeking of gratifications in fantasy.

In each of these categories other scales are to be found. They have been placed in the respective positions on the basis of their construct similarity or relatedness with the scales just mentioned. For example, Repression (R) is related to Psychasthenia (Pt) inasmuch as both variables stress lack of effective self-insight.

The vertical groupings also show psychological dimensions important in personality description. Dahlstrom and Welsh (1960, p. 81) describe these dimensions as follows:

Thus, depression and psychasthenia have in common a tendency to self-blame, while hysteria and hypochondriasis reflect a common feature of self-pity. Psychopathic deviate and hypomania both deal with self-aggrandizement. The two remaining scales, schizophrenia and paranoia, reveal a dependence upon intellectualized fantasies. The four scales at the left all have in common strong social dependency, while the four at the right deal with some form of hostility or aggression.

Henceforth, the proposed outline will be referred to simply as the Schema.

CHAPTER V

Analysis of Variance

Results and Discussion

The general hypothesis is that the relationships among personality variables are different for Cree and Blood students as compared with that of White students. This question has three divisions: 1) with increase in grade level the pattern of variables moves into an alienation set within the Indian group; 2) this pattern is different from that which appears for the White group; 3) for a sub-group of Blood students for whom longitudinal data exist, there is no significant change in personality configuration trend.

In this chapter, the first two divisions are examined statistically by means of analysis of variance. In the following chapter, the same two statements are again scrutinized through application of principal component analysis methods. Subsequent to the latter discussion, a third chapter reports the findings yielded through the use of repeated measures technique as a test of division three.

The results from analysis of variance are presented according to group, Cree, Blood, White. Appendix C contains all analysis of variance data. Unless otherwise noted, the Blood Sample comprises both the on and off reserve junior high school students from the 1968 academic year. The White Sample contains students from grades eight and nine only. Grade seven Whites, although tested in 1968, are not included due to validity difficulties attributed to the young

age of these students. They were found to be at least one year younger than their Indian classmates.

The nature of the hypothesis in its three divisions points to the statistical identification of the phenomenon of directional change over time, i.e. from grade seven through to grade nine. A complementary concern is with the effect of sex on the change, if any. With this double concern in mind, a two-way analysis of variance for each personality variable was carried out to see what differences exist between sexes and among grades.

Although the present study tends towards qualitative analysis based on the examination of trends, and extension of the probability level beyond the usual .05 level could be argued for, it was decided to stay with the customary cut-off level in order to assure a more conservative interpretation. The large number of variables (29) being tested, together with the large number of tests (3×29) including main (i.e. sex effects, grade effects) effects and interactions (i.e. sex by grade interactions) were also factors which influenced that decision. The conservative stance further seemed warranted in light of the recognized inherent crudeness of personality measurement at its best. The tendency toward higher scores on 28 of the 29 MMPI scales is tantamount to a tendency towards greater emotional maladjustment or difficulty. The Ego Strength (ES) scale is the exception. A high score on this scale is indicative of emotional strength.

A. The Cree Sample

As already stated, a two-way analysis of variance (sex by grade level) was performed on each of the 29 MMPI scales. The number of subjects in each group is shown in Table 3.

TABLE 3
Cree Subjects by Sex and Grade

	7	8	9	
Male	28	16	7	
Female	36	22	18	
N	64	38	25	127

It should be noted that there are marked differences in enrolment, as well as in the Blood Sample, between the grades. The decrease is remarkable, the sharpest contrast being provided by comparison of grades seven and eight with grade nine. The large decrease suggests that perhaps the greater number of students with difficulties are in the seventh and eighth grades, and that many, particularly after the eighth grade do not return to school. The decrease phenomenon might also have something to do with the compulsory school age of 16 beyond which a student is not required to attend. This could account for the peak scores which appear in approximately equal numbers at the seven-eight levels, and in both samples.

On 12 variables significant effects were detected. These variables and their respective means are shown in Table 4. Male and female means are shown for interaction, whereas averages of male-female means are used to report sex and grade effects. The variable constructs and the patterns manifest in the means are described under the usual "effects" headings.

1. Interactions

Four scales were identified as having interaction effects: Social Withdrawal (Si), Repression (R), Achievement Need (Ac), Ego Strength (Es). Grade effects also appeared for the latter two.

Male means reveal an increase in pattern through the three grades on R and Es. Si and Ac peak at the grade eight level. On the latter scale the difference between the eighth and ninth level is very slight.

For females, the trend is one of decrease through the grades on Si and R, and one of increase on Ac and Es. The differences between the seven and eight scores on Ac, and between eight and nine on Si, are not appreciable.

Male means compared with female means reveal some differences of pattern. Females are higher than males at the grade seven level on all four scales. At the nine level, males and females are virtually the same.

In summary, the broad male trend is for means to peak at the eighth level and with grade nine scores to be consistently higher than

TABLE 4

Significant MMPI Variables, Means, Cree Sample

Variables		Sex	7	8	9
Interaction Effects					
Si	Social Withdrawal	M	30.4	34.5	31.7
		F	34.8	32.1	31.6
R	Repression	M	12.8	14.4	15.0
		F	16.3	14.1	14.1
Ac	Achievement Need	M	9.5	13.7	13.1
		F	12.1	11.9	13.8
Es	Ego Strength	M	28.0	35.5	37.3
		F	29.7	29.3	34.6
Sex Effects					
MfM	Masculinity Tendency	M	21.8		
		F	23.0		
MfF	Femininity Tendency	M	21.4		
		F	29.9		
Hy2	Affection Need	M	3.3		
		F	4.0		
Pd2	Authority Conflict	M	5.4		
		F	4.5		
Grade Effects					
Pa	Paranoia		13.8	14.7	10.5
Sc	Schizophrenia		32.9	33.0	26.0
A	Anxiety		20.5	24.7	21.4
Ac	Achievement Need		10.8	12.8	13.5
Es	Ego Strength		28.9	32.4	36.0
Sc1b	Emotional Alienation		3.9	4.5	3.2

those of the seventh grade. The female trend appears to be one of definite decrease through the three grades for Si and R, and slight increase on Ac, and of sharp increase on Es from eight to nine. Since rise in score on Es is indicative of increase in emotional strength, it is interesting to note that this trend is corroborated by the Si trend, and for both scales particularly at the eight-nine level.

2. Sex

Four scales reveal significant mean differences on the sex variable, i.e. on Masculinity Tendency (MfM), Femininity Tendency (MfF), Affection Need (Hy2), and Authority Conflict (Pd2).

Female means run higher than those of males on MfM, MfF, Hy2, and lower on Pd2.

3. Grade

Grade effects occurred on six scales: Paranoia (Pa), Schizophrenia (Sc), Anxiety (A), Achievement Need (Ac), Ego Strength (Es), Emotional Alienation (Sc1b).

Ac and Es have already been referred to in the interaction descriptions. Scores peak on Pa, Sc, A, and Sc1b, at the grade level. On A, seven and nine scores are nearly the same.

Scheffe's contrast formula was applied for purposes of determining which individual grades show statistically significant grade differences. The results are reported in Table 5.

One feature of Table 5 is that the majority of the comparisons

show peak scores at the grade eight level, i.e. on six out of ten contrasts. A secondary feature is that of grade seven means being high on Pa and Sc, when compared to grade nine means, and that of grade nine means being highest of the three grades on Ac and Es.

TABLE 5
Scheffe's Contrasts, Cree Sample

Grade Levels ^a		7-8	7-9	8-9
Pa	Paranoia	7	7	8
Sc	Schizophrenia		7	8
A	Anxiety	8		
Ac	Achievement Need	8	9	
Es	Ego Strength	8	9	
Sc1b	Emotional Alienation			8

^aThe number in the column indicates the grade having the lower of the two grade means compared.

These statistical features appear to confirm the qualitative trend observed above, namely that of a tendency to peak at the grade eight level.

4. Conclusion and discussion

a. The Significant Trends

When main and interaction variations are compared, one broad characteristic appears. It derives from grade effects to which those of grade from the interaction patterns are compared. The observed trend

appears to be one of decrease only beyond the grade eight level, with grade nine means tending to be higher than those of grade seven. Within this framework of grades, the sexes seem to present often opposing trends, i.e. females scores tend to be higher than those of males at the seven level, higher at the eight level, and slightly lower at the nine level. Sex effects analysis show females as tending towards significantly higher scores.

Further meaning may be attributed to the above trend statement in reference to the logical categories, or scale constructs, as defined earlier, and in reference to the general alienation definition attendant to this investigation.

b. Relevance of the Alienation Rationale to the Findings

In an earlier chapter alienation was defined as being a:

. . . multi-dimensional and global type of group or individual feeling. The multi-dimensionality, which is variant, may be referred to as an alienation pattern or set. It has such subjective dimensions as powerlessness, normlessness, depression, self-estrangement, and objective correlates such as social isolation, rejection. It occurs whenever the process of cultural change is inhibiting, resulting in unsatisfied group or individual needs. It varyingly influences the degree of relatedness, whether it be intra-personally or inter-personally. It is a behavioral dysfunction to some degree, manifesting itself in social and economic relationships, and can ultimately lead to profound inner discomfort for those involved. (cf. supra., p. 45).

As defined, the essential trait of alienation is that it is global and multi-faceted in nature. Its focus is on the degree of relatedness of the individual self with self and with others. In terms

of process, the basic trait of the alienation perspective is one of a tendency to withdraw into the self. The dominant aspect of the result of such a process is an inner state or degree of inadequacy of ego, accompanied by marked limitations in relationships. It is also maintained that alienation is an induced condition which manifests itself variously. It is these various manifestations that the 29 scales of the MMPI, applied in this study, attempt to measure. The scales are intended to give some indication of the relative strength of impulse in the different emotional areas, which the scales signify and thereby indicate the pattern of break in self-maintenance (Dahlstrom and Welsh, 1960, p. 306).

The Cree grade variable profile (cf. supra, p. 69) shows correspondence with the essential alienation traits as defined above. All three grades, in a set of relative differences, reveal symptoms of growing inadequacy of ego, characterized by decreasing ability to hold and maintain relationships.

Five variables showing significant interactions, over-sensitivity and suspiciousness (Pa), generalized insecurity, lack of confidence in one's abilities (A), with drawal from reality (Sc), together with lack of rapport with self (Sc1b), complemented by an impulsive penchant to be dependent on others for love and support (Ac), seems to warrant the conclusion that the three grades share the alienation profile in the following way: eights tend to show relatively greater maladjustment, with the nines tending to experience more difficulty than the

sevens. Note that the grade nine means are considerably lower than those of grade seven on Pa and Sc, which means considerable diminishment in two important tendencies, given the broad nature of these two behavioral constructs. The Es trend is a very important one. It is interpreted as indicative of a growing sense of self-integration, which is significant given the conceptual import of this scale in the MMPI scheme of things. The parallel Ac trend suggests that this integrative process is moderate, countered by increased difficulty in the area of social dependency. This Ac trend also suggests that, in the instance of the grade nines, their dependency is evidence of having perhaps accommodated to the system - they are less rebellious. The grade nine conditon could, speculatively at least, derive from the fact of the much smaller N. This intimates that perhaps the most alienated students have dropped out, for whatever reason, leaving a group who do not appear to be as maladjusted. To sum up, the total picture of grade profiles seems to indicate a clear element of alienation, despite the decrease in intensity in several behavioral dysfunctional areas.

Significant sex effects appeared on four variables. Females tend to be higher than males in the areas of masculinity (MfM) and femininity (MfF) tendencies, of resentfulness of others and overstriving for reinforcement and emotional support (Hy2). Females means are lower than males in the area of resentment of societal demands and standards (Pd2). This pattern suggests that the females are more withdrawn and unsure of themselves than are the males who appear to

display more inward rebelliousness (Pd2).

When compared to the trends apparent in the interaction patterns, the latter male tendency is further confirmed. R and Es show increase through the three levels, indicating development of a contained sense of self, modified at the nine level by a lower degree of withdrawal (Si). The peak level of maladjustment for females is at the seventh grade on withdrawal (Si) and repression (R) tendencies. The Achievement Need trend is largely unchanging throughout the grades for females, displaying a slight increase at the ninth level. Males and females are somewhat alike on the Es scale. The rise in means is indicative of a growing sense of integration of self, a movement away from inhibition, anxiety, submissiveness and repression. Within the configuration of grade effects at the seven and eight levels, which is one of increase on Pa, Sc, A, Ac, and Sc1b, the Es trend should be read as one of relative growth, countered by growing difficulties in other emotional areas. This also suggests, once again, that those who remain in the school system are developing stronger egos, not withstanding difficulties in other areas.

In terms of the basic alienation trait of inadequacy of ego with limited ability for relating to others, the female trends are striking. Unsureness of self in the areas of masculine-feminine orientation, aggressiveness-passiveness (MfM - MfF), allied with an over-striving for reinforcement and emotional support (Hy2), point to a weakened social ability. Pd2 indicates an aloofness on the part of

the males.

Pending comparisons of the Cree, Blood and White samples, further articulation of meaning of results is difficult. A reference, however, is possible to the hypothesis of this investigation.

It was stated that with increase in grade level, the pattern of variables moves into an alienation set within Indian groups, and that the configuration of personality variables is different for Indian students as compared with that of Whites (cf. supra, p.65).

The presence of an alienation set finds some support in the discussion on the relative conceptual importance of the variables displaying grade effects. It was argued that all grades show significant levels of a tendency towards maladjusted behavior on Paranoia, Schizophrenia, Anxiety, Achievement Need, and Emotional Alienation, and that the characteristic pattern appears to be one of increase, peaking at the eighth level, with nines being in greater emotional difficulty than the sevens.

The alienation characteristic was further focussed on in the analysis of sex variation. Females display unsureness in sexual orientation, and over-striving and reliance on others, and males show greater independence. It would seem that females compared with males tend towards more alienation symptoms.

It is not possible however, to affirm that this Cree Sample clearly "moves into an alienation set", as stated in the hypothesis. It may be affirmed however, as qualified, that some such movement appears between grade seven and grade eight. Grade eight is a peak on the

majority of variables showing grade effects. The graph data (cf. supra., pp. 38-43) point to the likelihood of an earlier trend. It becomes plausible to consider that the seven-eight peak pattern, which is at nine for some variables, from the view-point of trends through the three grades, climax an alienation process begun in the lower grades. And once again, this mosaic of trends indicates a need to speculate further about the effect of drop-outs from the grade eight and nine categories on the observed trends among the personality variables, and also with reference to the trend of grade nine scores to be higher than those of grade sevens. Further investigation would also have to keep under control the effects of such environmental variables as teacher effects, classroom curricula. Such data are not currently available.

In view of the considerations made in this concluding section of the analysis of Cree Sample results, it is suggested that section one of the Hypothesis, with increase in grade level the pattern of variables moves into an alienation set within Indian groups, receives qualified support.

B. The Blood Sample

A two-way analysis of variance (sex by grade level) was performed on each of the 29 MMPI variables for this sample. The number of subjects in each group is shown in Table 6. It should be remembered that the comments made at the outset of the Cree analysis with reference to the marked differences in enrolment through the grades, particularly between the eight-nine levels, hold here as well, and are considered

again in the concluding remarks to this section on the Blood Sample.

TABLE 6
Blood Subjects by Sex and Grade

	7	8	9	
Male	39	23	11	
Female	37	33	19	
N	76	56	30	162

Table 7 presents the 10 variables which, when tested, showed a significant probability level. Main and interaction effects are examined below.

1. Interaction

Interaction effects appeared on seven variables: Hypochondriasis (Hs), Femininity Tendency (MfF), Psychasthenia (Pt), Anxiety (A), Achievement Need (Ac), Dependency (Dy), Social Alienation (Pd4a).

There is no over-all characteristic trend apparent in the male means. Four of the seven scales show the familiar grade eight peak profile, with nine scores higher than those of seven, i.e. on MfF, Ac, Dy, Pd4a. The peak pattern on Ac and Pd4a, while visible, is very slight. A complete reverse, in that the eight means are the lowest of the three grades with nine lower than seven but higher than eight, is found on Hs, Pt, and A.

TABLE 7

Significant MMPI Variables, Means, Blood Sample

Variables		Sex	7	8	9
Interaction Effects					
Hs	Hypochondriasis	M	12.3	10.0	8.9
		F	9.5	11.9	8.0
MfF	Feminity Tendency	M	23.7	30.1	25.5
		F	23.5	27.8	30.1
Pt	Psychasthenia	M	23.2	19.7	22.6
		F	22.6	25.5	24.6
A	Anxiety	M	21.1	19.7	20.2
		F	20.5	24.7	22.3
Ac	Achievement Need	M	12.1	14.1	13.4
		F	13.8	12.3	14.2
Dy	Dependency	M	27.6	31.6	30.7
		F	31.6	27.9	30.4
Pd4a	Social Alienation	M	7.6	9.7	8.7
		F	8.8	7.9	9.9
Sex Effects					
Pt	Psychasthenia	M	21.8		
		F	26.2		
Si	Social Withdrawal	M	32.8		
		F	35.9		
A	Anxiety	M	20.3		
		F	22.5		
Grade Effects					
Hs	Hypochondriasis		10.8	11.0	8.5
MfM	Masculinity Tendency		23.1	28.7	27.3
MfF	Femininity Tendency		23.6	29.0	27.8
Dl	Subjective Depression		11.8	13.5	13.1

Female scores, with one exception, are in opposite pattern to that of the males. The exception is Femininity Tendency (MfF) which shows an increase in means through the three levels. The grade eight peak pattern, now recurrent, is apparent on Hs, Pt, and A. The nine Hs mean is however lower than that of seven. A reverse profile, i.e. low grade eight, is revealed by Ac, Dy, and Pd4a. As with the male means, on Ac and Pd4a, while the characteristic pattern is observable, the differences through the three grades are slight.

A comparison of male and female means indicates some similarities and differences. At the grade seven level both sexes are virtually similar on all scales except Hs and Dy. The widest divergences are at the grade eight level. Females are higher than males on Hs, Pt, and A, and lower than males on MfF and Dy. They are also lower than males on Ac and Pd4a, but this difference, as already noted, is not striking. Female scores are practically similar on the nine level on Hs, Ac, Dy and Pd4a. On MfF, Pt, and A, females score clearly higher than males.

In summary, there is no over-all characteristic to the interaction profiles. Half of the scales tend to peak at the eight level; a majority of the scales display higher nine than seven means.

2. Sex

Pt and A have already been dealt with in the preceding description. Females score higher than males on Social Withdrawal (Si). In summary, female means are higher on Pt, Si, and A.

3. Grade

Significant grade effects appear on four scales: Hypochondriasis (Hs), Masculinity Tendency (MfM), Femininity Tendency (MfF), Subjective Depression (Dl).

MfM, MfF, and Dl indicate the grade eight peak pattern with higher nine than seven means. Hs displays the same peak profile, with lower nine than seven scores. The drop from eight to nine on Dl is very small. The differences among the three grades on Hs are small, although the eight mean is the highest.

Scheffe's test, when applied, yielded significant gaps, all at the .00 level, on scales MfM and MfF, between grades seven-eight, and between seven-nine.

In summary, the dominant characteristic of grade effects appears to be one of trend to peak at the eighth level.

4. Conclusion and discussion

a. Significant Trends

The interaction profiles do not reveal an outstanding trend. On all three variables, female means are significantly higher than those of males. Grade variation is observed as one of tendency to peak at the eighth level.

b. Revelance of the Alienation Rationale to the Findings

Correspondence with the essential alienation traits, as defined earlier, appears to be more tenuous for this sample than for the Cree.

The definition states that the main characteristic results of the alienation process is one of increasing inadequacy of ego, coupled with growing difficulties in maintaining relationships. By this criterion, and as compared with the Cree Sample, the Blood configuration as a whole seems to indicate a less severe pattern of inner conflict and social dependency.

The grade profile is the recurrent one of peak at the eight level. Tiredness and inactivity (Hs), and low self-esteem, lack of energy in coping with personal problems (Dl), combine to indicate a disposition of some apathy. The peak pattern is more striking on the MfM and MfF scales. Both trends are, in a sense, at odds with each other. Both increases are indicative of greater sensitivity, but MfM is one of trend towards aggressiveness, and MfF towards feminine passivity. MfM and MfF, as instances of Psychopathic Deviation (Pd), are indicators of over-sensitivity, rebelliousness, social aggressiveness, or of passivity, gentleness, either of which in turn may be interpreted as some degree of diminishing social ability.

Females are clearly higher than males on Pt, Si, and A, variables which show sex effects. Feelings of personal and social inferiority, and dependence (Pt), as buttressed by a tendency to be unassertive and self-conscious (Si), together with a general feeling of insecurity, and lack of confidence in self abilities (A), appear to characterize the females, relative to the males.

The interaction pattern is complex. At the grade seven level males and females differ very little from each other on five of the

seven variables. Males are much less reliant on others (Dy), but show more lethargy, concern over physical self (Hs), than do females. At the eighth level, females contrast with males in that they reveal greater preoccupation with the physical self (Hs), compulsiveness, feelings of personal and social inferiority (Pt), with the latter inferiority further compounded by feelings of anxiety (A). Males at once feel more socially isolated (Pd4a), and excessively reliant on others (Dy), Ac). than the females. At the grade nine level females show the strongest pattern of any grade in the areas of aggressiveness (MfF), over-dependence on others (Ac), feelings of isolation from others (Pd4a). This trend is modified by less concern with the physical self (Hs) than at any other level. Relative to females, at the nine level, males are practically the same, except in the area of MfF which shows them to be less aggressive. Males are lower than at the eighth level but higher than at the seventh level in the areas of aggressiveness (MfF), reliance on others (Ac, Dy), and social isolation (Pd4a). There is an over-all trend for grade nine means to be higher than grade seven means. This occurs on nine out of 14 mean patterns.

To sum up in terms of the alienation rationale, the described patterns seem to indicate that these Blood students are characterized by a very moderate pattern of alienation, and that this pattern varies in its facets at each of the three grade levels, as apparent in the interaction profiles. The inadequacy-of-ego dynamic is pointed to by the sex profiles which show females to be more insecure (Pt, A) and

socially inadequate (Si) than males. A same pattern of inadequacy appeared in the grade profiles, grade eight being the peak level. An undue concern with the physical self, conflict in the area of aggressiveness-passiveness (MfM, MfF), and depression, low self-esteem (D1), are the ear-marks.

In terms of the hypothesis, the described profiles warrant only a cautious statement of support. As in the previous sample, there is no tendency or trend for means to peak at the grade eight level within the interaction patterns, but it is clearly in the grade effects means. This gives some indication of directional change through the three grades. The same conjectures applied in the Cree analysis hold here as well regarding the possible pre-grade seven trends, the significance of unequal N's particularly at the grade nine level, and the effects of drop-outs, and teacher-environmental factors (cf. supra., p. 77).

C. The White Sample

For this sample, a two-way analysis of variance (sex by grade level) was performed on each of 29 MMPI scales. The number of subjects in each group is shown in Table 8. The fact of the approximately equal N for both grades should be noted. These figures do not reflect actual enrolment, or enrolment trends, as in the previous two samples. The 100 white students were chosen randomly by computer from 643 white students attending various schools at these two grade levels.

On eleven variables significant effects were found. These variables with their respective means are shown in Table 9. Interaction,

TABLE 8

White Subjects by Sex and Grade

	8	9	
Male	29	22	
Female	24	25	
N	53	47	100

sex and grade means are described in the following paragraphs.

1. Interaction

Achievement Need (Ac), Dependency (Dy), Authority Conflict (Pd2), and Social Alienation (Pd4a), show interaction effects.

The male tendency is one of decrease from eight to nine on all four scales, whereas that of the females is one of increase on Ac, Dy, and Pd2. On Pd4a, the female decrease is extremely slight.

2. Sex

Significant differences between the sexes appear on Masculinity Tendency (MfM), Femininity Tendency (MfF), Ego Strength (Es), and Ideas of External Coercion (Pal).

Female means are higher than male means on MfM, MfF, and Pal, whereas they are below male means on Es.

TABLE 9

Significant MMPI Variables, Means, White Sample

Variables		Sex	8	9
Interaction Effects				
Ac	Achievement Need	M	14.2	12.6
		F	11.8	14.0
Dy	Dependency	M	29.4	22.9
		F	27.0	28.0
Pd2	Authority Conflict	M	5.3	4.8
		F	4.1	5.4
Pd4a	Social Alienation	M	8.4	5.9
		F	7.4	7.0
Sex Effects				
MfM	Masculinity Tendency	M	26.6	
		F	28.8	
MfF	Femininity Tendency	M	26.8	
		F	31.0	
Es	Ego Strength	M	40.4	
		F	36.8	
Pal	External Coercion	M	3.6	
		F	4.7	
Grade Effects				
MfM	Masculinity Tendency		28.9	31.4
MfF	Femininity Tendency		25.1	32.8
Es	Ego Strength		36.8	40.4
D4	Mental Dullness		4.8	3.4
Pd4a	Social Alienation		7.9	7.0
Pd4b	Self Alienation		6.3	5.0
Pal	External Coercion		5.0	3.8
Scla	Lack of Rapport		7.3	5.4

3. Grade

All eight pairs of means are significantly different in terms of grade variation. Means increase from eight to nine on Masculinity Tendency, Femininity Tendency (MfF), and Ego Strength (Es), and decrease on Mental Dullness (D4), Social Alienation (Pd4a), Self Alienation (Pd4b), Ideas of External Coercion (Pal), and Lack of Rapport (Scla).

4. Conclusion and discussion

a. Significant Trends

In this sample, grade effects' trends are the most impressive of the three variation categories because of their number and dominant trend characteristic. A decrease profile is shown by five of eight variables. This trend also obtains for males in the interaction patterns. The major female trend is one of increase.

b. Relevance of the Alienation Rationale to the Findings

Relative to grade nine, grade eight is the peak. It is unfortunate that the latter's relationship to grade seven is unknown. One feature of this cluster of variables lies in the appearance of a number of specifically defined "alienation" variables for the first time in this study. Feelings of isolation from others, lack of belongingness (Pd4a), lack of self-integration and dependency (Pd4b), lack of meaningful relationships (Scla), in context with unresponsiveness and distrust of one's own psychological functioning (D4), and a tendency to externalize blame for personal problems (Pal), strongly suggest a

growing alienation pattern. D4 and Pd4b point to the inadequacy-of-ego dimension, and Pd4a, Pa1, and Scla focus on the phenomenon of developing limitation in social relationships. This is the clearest alienation set observed in the three samples, and is the more acute at the eight level.

The pronounced co-ordination of emotional areas receives some modification from trends on MfM, MfF, and Es scales. Relative to the females, males display more gentlemanly, subdued behavior, whereas the females tend toward independent, rough and ambitious behavior (MfM). The preceding male characteristic is further affirmed by the MfF indication. The female trend on MfF is opposite to males again in that it is a trend towards greater femininity. Paralleling MfM and MfF would suggest an area of considerable conflict were it not for the presence of Ego Strength, and again, the fact of the decrease in pattern on the other five variables. Es and the five indicate an increased sense of self-integration from eight to nine.

The interaction profiles lend partial support to the self-integration pattern. The diminishment pattern is evident for males in areas of over-dependence on others (Ac, Dy), resentment of societal demands (Pd2), and feelings of isolation from others (Pd4a), whereas females display a slightly opposite tendency on Pd2 and Pd4a, and a sharper contrast on Ac and Dy.

Grade eight is the peak level for males. Their tendency is to move away from the alienation set. This trend is less obvious for females who, while displaying a greater out-goingness, or activity

(MfM, MfF), or an independence, may well be expressing this in the form of growing hostility. Paradoxically, however, this trend is modified by the apparent increase in the areas of dependence on others (Ac, Dy), and externalization of blame for personal problems (Pd2). So, there is at once a female complex of independence-hostility and social dependency.

To sum up, the White Sample seems to reveal a relatively clearer pattern of alienation at the grade eight level which tends towards decrease with rise in grade. Males appear to move from such a pattern towards one of greater self-integration, whereas the pattern of females, while in a same movement, at the same time exhibit an edge of distrust-hostility-dependence.

In terms of the hypothesis, it appears that the White profile differs from that of the Blood and the Cree, in that the significant variables compose a relatively clearer alienation pattern. The White set comprises alienation variables as such, by definition, in contrast to that of either Indian sample. Tentatively, this brings support to the contention that Indians are different from Whites, but in this instance, in an unexpected manner. Pending further comparisons of the three groups in the next section, it appears that the White Sample reveals a sharper alienation configuration. The pattern arises out of the relative change in means between grades eight and nine. Whether this pattern is comparatively more severe than those of the two Indian groups is commented on in the next division.

D. Variable Means for All Samples

Table 10 reports the grade means for the Cree, Blood, and White Samples, on the 29 personality variables. The preceding descriptions, based on two-way analysis of variance, set forth the change profiles whenever changes in means were found to be statistically significant. Interpretations of the statistical significance were founded on the nature of the constructs represented by the variables so designated, and also based on the relevance of alienation theory to these same variables. The change patterns discerned were characteristic of a grade group within the respective samples. No significance tests were made of differences between sample means. The next presentation attempts to underscore several trends observed when sample means are visually compared. Differences of less than one defining means as being the "same", is the comparison criterion.

1. Grade seven

A comparison of the means of the Cree and the Blood shows that these two samples are virtually the same on L, MfM, MfF, Pa, Ma, A, My2, Pd2, Pd4a, Pd4b, Pa1, Scla, and Sc1b. Whereas the Cree score higher on K, Hs, D, Hy, Pd, Pt, Sc, D1, and D4, the Bloods score higher on F, Si, R, Ac, Es, Dy, and Pr.

Using the Schema (cf. Figure 7) as a classification guideline, two differentiating patterns appear. The matrix of shared variables is one of aggressiveness within the ethnic group.

That which is unique to the Cree relative to the Bloods,

Table 10

		Grade 7			Grade 8			Grade 9		
		<u>Cree</u>	<u>Blood</u>	<u>Cree</u>	<u>Blood</u>	<u>White</u>	<u>Cree</u>	<u>Blood</u>	<u>White</u>	
		64N	76N	38N	56N	53N	25N	32N	47N	
L	Lie	4.58	4.92	3.89	4.57	3.47	4.12	3.97	3.47	
F	Validity	11.25	19.04	9.61	17.55	13.13	10.28	15.38	11.79	
K	Distortion	18.63	11.30	19.64	10.46	10.79	14.16	9.84	11.53	
Hs	Hypochondriasis	12.84	11.37	12.63	10.77	8.55	10.24	8.13	7.26	
D	Depression	24.91	23.88	23.92	24.25	19.77	22.40	23.69	19.64	
Hy	Hysteria	22.45	20.86	20.37	21.59	19.55	19.68	18.78	20.19	
Pd	Psychopathic Deviat.	22.75	21.67	21.87	21.50	18.70	19.88	22.00	19.64	
MfM	Masculinity	26.33	26.07	27.24	24.91	25.34	26.68	26.94	28.87	
MfF	Femininity	26.66	26.58	26.84	25.13	26.62	27.52	28.19	31.09	
Pa	Paranoia	13.94	13.43	14.66	13.38	11.74	10.48	13.47	11.53	
Pt	Psychasthenia	24.23	22.50	25.58	23.71	18.81	23.12	23.69	19.72	
Sc	Schizophrenia	33.02	29.45	33.63	28.77	22.28	26.88	25.88	21.11	
Ma	Hypomania	21.53	21.24	23.53	21.05	19.81	20.16	19.91	19.19	
Si	Social Withdrawal	32.88	33.96	33.13	34.86	29.38	31.64	35.50	31.64	
A	Anxiety	20.63	21.09	24.87	22.27	17.40	21.12	21.31	19.55	
R	Repression	14.78	15.82	14.21	16.18	16.08	14.26	16.69	14.87	
Ac	Achievement Need	10.92	12.86	12.66	13.11	12.51	13.60	14.00	14.04	
Es	Ego Strength	28.95	35.01	31.89	34.18	37.47	35.40	37.31	39.96	
Dy	Dependency	26.94	28.78	29.68	29.75	26.15	26.20	32.13	28.06	
D1	Subjective Depression	13.41	12.21	13.63	13.18	9.13	12.16	12.41	9.64	
D4	Mental Dullness	6.23	5.20	5.84	5.59	4.00	5.64	5.63	3.83	
Hy2	Affection Need	3.77	3.91	3.97	3.91	4.58	3.56	4.06	5.15	
Pd2	Authority Conflict	5.05	5.37	5.05	4.82	4.70	4.72	5.34	5.17	
Pd4a	Social Alienation	8.66	8.47	9.16	8.43	7.19	7.76	9.41	7.23	
Pd4b	Self Alienation	7.88	7.17	8.87	7.38	5.58	7.44	7.88	5.77	
Pal	Ideas of Ext. Coercion	6.88	6.01	6.92	5.96	4.32	5.16	6.47	4.00	
Scla	Lack of Rapport	8.64	8.45	9.08	8.05	6.49	7.40	8.31	6.40	
Sclb	Emotional Alienation	3.94	3.43	4.47	3.54	2.19	3.36	3.00	2.40	
Pr	Prejudice	17.42	18.70	19.82	18.79	15.11	18.48	19.81	15.91	

indicates a profile of lack of self-confidence, lack of energy, unresponsiveness (D, D1, D4, Pt), with an edge of constrained rebelliousness (Sc, Pd), and need for social acceptance (Hy). The Blood pattern reveals a relatively stronger attachment-compliance trend (Ac, Dy), coupled with elements of distance and restraint (R, Si), carelessness (F), and rebelliousness-distrust (Pr), but modified by the important factor of a relatively greater sense of self (Es.).

To sum up, the Cree tend to be more repressed, aloof, whereas the Blood tend to be more expressive, exhibiting greater social attachment.

2. Grade eight

At this level, the Cree and Blood samples show similarity on L, D, Pd, Ac, Dy, D1, D4, Hy2, Pd4a, and Sc1b. The Cree attain higher than the Blood on K, Hs, MfM, MfF, Pa, Pt, Sc, Ma, A, Pd4b, Pal, Scla, and Pr, whereas the Blood are higher on F, Hy, Si, R, and Es. The shared pattern is, on the face of it, largely one of unresponsiveness (D, D1, D4, Sc1b), emotional need (Ac, Dy, Hy2), and resentment-distrust (Pd, Pd2, Pd4a). Here again, it must be remembered, these means of themselves are not indicators of emotional dysfunction - they may well be indices of lack of the observed pattern.

The full picture in the case of the Cree becomes one of comparatively stronger anti-social, hostile, withdrawal tendencies (Pd4b, MfM, MfF, Pa, Pal, Pt, Sc, Scla), with a manipulative trend (K, Hs, Ma), a

pervasive anxiety (A), whereas the Blood show a relatively subdued profile (R, Si, F), allied with both an emotional need (Hy), and some greater sense of self (Es).

At this grade level, sharper differences occur when contrasted with the patterns of the previous grade. It is the Blood who appear to be the more socially dependent, but with restraint, and the Cree who seem to be more anti-social, distant.

3. Grade nine

Means are the same for both groups on scales L, MfM, MfF, Pt, Ma, A, Ac, D1, D4, Hy2, Pd4b, Scla, Sc1b. The Cree are higher on K, Hs, Hy, Sc, whereas the Blood have higher means on F, D, Pd, Pa, Si, R, Es, Dy, Pd4a, Pal, and Pr. Again, as in the previous two grades, the shared variable patterns are not inherently indicators either way of strength or weakness.

As to uniqueness of emotional response style, there seems to be a reversal of trend again in comparison with the previous grade. The Blood display a stronger set of rebelliousness (Pd, Pd4a), projection and distrust (Pa, Pal, Pr), with some feeling of sense of self (Es), yet constrained by withdrawal, repression-depression, and dependency symptoms (Si, D, R, Dy, whereas the Cree show a pattern of repressed hostility (Hs, Hy, Sc, Ma).

In summary, relative to each other, at the grade seven and eight levels, the Cree appear to be more maladapted, whereas at the

nine level, the Blood show stronger maladjustment trends. Consistent through the three grades, and proper to each tribe, there seems to be a dominant characteristic. The Cree, throughout all grades, display greater anti-social, withdrawal tendencies, whereas the Blood reveal greater social attachment and ego adequacy.

4. White and Indian

A comparison of grade eight White means with those of grade eight Cree and Blood reveals that for the White sample 19 out of 29 variables are clearly lower than those of either Indian sample, Hs, D, Hy, Pd, Pa, Pt, Sc, Ma, Si, A, Dy, D1, D4, Pd4a, Pd4b, Pal, Scla, Sc1b, Pr. White means are higher than those of the two Indian grades on Es. The higher Es mean confirms the 19 variable trend, interpreted as indicating less emotional dysfunction. White means are the same as Blood and Cree means on Ac, Hy2, and Pd2, the same as those of the Blood on K, MfM, and R, the same as those of the Cree on L, and MfF. White means locate between Cree and Blood means on F. Thus, in the emotional areas of L, K, Ac, Hy2, Pd2, K, MfM, MfF and R, Whites basically are no worse or better than Indians.

When White grade nine means are compared with both Indian group means, 11 variables are found to be lower, on D, Pt, Sc, A, D1, D4, Pd4b, Pal, Scla, Sc1b, Pr. Whites are higher in the areas of MfM, MfF, Es, Hy2. These Whites appear to experience greater difficulty than Indians in the area of male-female dimensions in

relationships, together with a greater need for social reinforcement (Hy2), but at the same, as compared with Indians, their ego strength is better (Es). The Whites are like the Bloods and Crees on L, Ma, and Ac, like the Bloods on Hs, and like the Crees on Hy, Pd, Si, and Pd4a. Whites place between both Indian groups on F, K, Pa, and Dy.

The salient trait of these comparisons is the relatively less degree of emotional difficulty of Whites. This is particularly apparent on the alienation variables such as Pd4a, Pd4b, Scla, Sc1b, and on the Es scale. This trait suggests further support of the hypothesis in its statement that the Indian pattern of alienation is different from that of Whites. This difference, however, is qualitatively relative. It does not seem to be one of difference in kind, but only in degree.

E. Summary and Discussion

A summary of the significant MMPI variables for all three samples is provided by Table 11. On the basis of the Sample profiles produced by analysis of variance, three statements relevant to the Hypothesis have been made.

In summary to the Cree analysis, it was suggested that the contention, that with increase in grade level, the pattern of variables moves into an alienation profile within Indian groups, receives qualified support. The absence of data concerning both possible developmental trends above and below the seven and nine grade levels, and concerning the impact of environmental variables such as cultural values, teacher effect, and given the phenomenon of large enrolment

TABLE 11

Significant MMPI Variables: Cree, Blood, White Samples

Effects ^a		Samples								
		Cree			Blood			White		
		I	S	G	I	S	G	I	S	G
Hs	Hypochondriasis				*		*			
MfM	Masculinity Tendency		*				*		*	*
MfF	Femininity Tendency		*		*		*		*	*
Pa	Paranoia			*						
Pt	Psychasthenia				*	*				
Sc	Schizophrenia			*						
Si	Social Withdrawal	*				*				
A	Anxiety			*	*	*				
R	Repression	*								
Ac	Achievement Need	*		*	*			*		
Es	Ego Strength	*		*					*	*
Dy	Dependency				*			*		
D1	Subjective Depression						*			
D4	Mental Dullness									*
Hy2	Affection Need		*							
Pd2	Authority Conflict		*					*		
Pd4a	Social Alienation				*					*
Pd4b	Self Alienation							*		*
Pa1	External Influence								*	*
Scla	Lack of Rapport									*
Sclb	Emotional Alienation			*						
Totals		4	4	6	7	3	4	4	4	8

^a I: Interaction; S: Sex; G: Grade.

decreases within the Indian groups - particularly at the eight-nine level, with the possible result of the removal of relatively large numbers of maladjusted students - which could thus provide some explanation for the observed group improvement in sense of self and others at the nine level, seems to require such a careful statement.

At the conclusion of the Blood analysis, a similar but more cautious declaration was made. This was based on what appeared to be a less distinct, or slighter tendency for Blood means to peak at the eight level. As compared with the Cree trend, the Blood pattern was interpreted as showing slight indication of directional change through the three grades. Also the same speculations regarding pre-post junior high trends, impact of various environmental conditions, the eight-nine enrolment pattern, were held to maintain for the Bloods.

Finally, it was stated that, with regard to the White Sample, there appeared to be a relatively clearer decreasing maladjustment pattern, a profile different from that of the two Indian groups.

In all three instances, it was held that the various sample trends were indicative of an alienation pattern, one defined as focused on the dimension of inadequacy of ego.

It was also found, upon examination of all variable means for each of the three groups, that, while there is variation in pattern between Cree and Blood at each grade level, when compared with the White means, a relatively distinct White pattern of lower personality

dysfunction appeared.

Earlier, it was suggested that a greater number of students with emotional difficulties leave after the grade eight level, that compulsory leaving age accounts for others not returning to grade nine. To these possibilities, a third may be added, and it is simply that of quitting school once age 16 is reached, the age beyond which one is not required by law to attend school. These probabilities could account for the peak scores appearing at the seven-eight levels. The high rate of decrease in scores into the ninth level could be attributed therefore to the relative absence of less maladjusted students at this grade level. It could also be attributed to the possibility that the longer a student stays in school, or at least in a given school, the better are his chances of emotional improvement.

It must also be kept in mind that the preceding explanations are based on relative changes, changes relative to grades, and to samples, and that these explanations are frequently based on differences not always statistically significant. For want of established cultural norms of alienation for Cree and Blood Indians, the feasible alternative has been to rely on relative changes in means for indications of emotional change. It has been on this basis that signs of alienated behavior have been defined. It is not clear that the "drop-outs" are in fact such, because of an existential inner maladjustment, more severe than normal adolescent growth neurosis. The Indian students, and Whites also for that matter, when "dropping-out"

may well be push-outs. Further comments on this issue will be made in the final chapter.

One last observation regarding the fact of not returning to school may be made. "School" is used to designate institutions providing academic programs. The student referred to as a drop-out is a drop-out only from such schools. According to several Indian school principals, during the past five years virtually all Indian students who did not return to a grade nine academic program have gone on to other forms of training. This suggests further that the alienation syndrome may be relative to the academic school.

In terms of sex, it is apparent from the tables which present subject distributions that, at the time of the data gathering, there was a tendency for more girls than boys to return to grade nine. The analysis of variance showed that females generally tended to become less alienated through the grades. The reasons for this phenomenon, in addition to the points raised above, require further anthropological data about Cree and Blood cultures.

CHAPTER VI

Principal Component Analysis

Results and Discussion

It is a recognized fact that the MMPI criteria are not homogeneous (see Hathaway and McKinley, 1951; Dahlstrom and Welsh, 1960). The criteria are not internally consistent groupings of behavioral features. They are clusters of symptoms, indicating emotional areas, which overlap and are inter-related in a variety of ways. This is both evident in the construct definitions themselves, many of which are relatively complex, Paranoia, Psychasthenia, Schizophrenia, Anxiety, Social Withdrawal, Ego Strength, Prejudice, for example - and empirically in the fact of item overlap. An illustration of the latter overlap may be found between the F Validity and Schizophrenia scales. These two measures share 15 items. There are thus a number of relationships to be found between a given scale and many others in any given profile. The adaptations of the Dahlstrom and Welsh revision of the Diamond schema, shown earlier in Figure 7, is an attempt to give some indication of this and deal with it. A second effort in this regard lies in the application of principal component analysis.

In preceding chapters through the use of analysis of variance primarily, the concern was with change through time by scrutiny of changes in means between groups. Through the use of principal component analysis the focus now shifts from the means to that of the relation-

ships between variables within each group, or grade, in each of the samples. Consideration of the relationships is another approach to identifying the change that occurs through time. Comparison of the individual grade patterns derived from separate principal components analyses, may well reveal a congruence of results, albeit of a tentative nature, in turn pointing to a general characteristic of Indian juvenile personality.

A principal components analysis was carried out for each grade in each sample. The components corresponding to eigenvalues greater than one were extracted. Those components having only one salient loading were eliminated. The remaining components were then rotated to the varimax criterion. For the purposes of analysis and interpretation, salients were defined as those variables whose loadings on components were .500 or greater.

The above criteria were applied and yielded from five to seven components in the samples studied. A summary of the variance accounted for by the components in each analysis is presented in Table 12. Appendix D contains the complete matrices of rotated loadings for all groups.

The problem of interpreting and labelling the components presented itself as a difficult task. While statistically independent, the components, from a construct point of view, appear to overlap. This further attests to the tendency underscored at the outset of this introduction. In the attempt to name the components, the Schema as presented (Figure 7) served as the major guide-line. The labelling or

Variance Accounted for by Principal Components for All Samples

Principal Components										
Sample	N	Grade	h^2	1	2	3	4	5	6	7
Total Vari- ance	64	7	26528	3988	3912	3792	2719	2560	1847	1791
	38	8	26751	6869	3724	3161	2402	1905	1789	1596
	25	9	29040	10459	3147	3096	2832	1835		
	76	7	27229	9894	4696	2335	2056	1514		
	56	8	26692	6484	3242	2550	2371	2348	2204	1911
White	32	9	28800	11685	4273	3226	2029	1967		
	53	8	27796	7944	4672	2936	2740	2504		
	47	9	28063	7650	5677	3179	2593	2094	1511	
Per Cent of Common Vari- ance	Cree	7	100.0	15.1	14.8	14.3	10.3	9.74	6.99	6.75
		8	100.0	25.8	13.9	11.9	8.97	7.02	6.70	5.97
		9	100.0	36.2	10.9	10.7	9.77	6.53		
	Blood	7	100.0	36.4	17.2	8.55	7.53	5.55		
		8	100.0	24.2	12.1	9.55	8.87	8.80	8.23	7.15
		9	100.0	40.9	14.9	11.2	7.05	6.85		
	White	8	100.0	28.6	16.8	10.5	9.91	9.02		
		9	100.0	27.2	20.2	10.8	9.23	7.45	5.37	

TABLE 12 (Continued)

Principal Components											
	Sample	N	Grade	H ²	1	2	3	4	5	6	7
Per Cent of Total Variance	Cree		7	56.3	8.46	8.31	8.05	5.92	5.43	3.92	3.81
			8	55.6	14.3	7.82	6.56	4.98	3.95	3.72	3.33
			9	51.5	23.2	6.25	6.13	5.60	3.74		
Blood			7	58.8	21.4	10.1	5.04	4.43	3.26		
			8	56.0	13.5	6.72	5.33	4.95	4.90	4.60	4.08
			9	56.3	22.9	8.43	6.25	3.93	3.82		
White			8	57.7	15.7	9.24	5.79	5.42	4.95		
			9	54.3	15.1	11.2	6.25	5.12	4.12	2.98	

^a Decimals are omitted: 21660 is 21.660; 9175 is 9.175 etc.

identifying the components of is essentially in terms of expressive-repressive correlation, or analogously, in terms of the personal-social, the dynamic self-other process, manifest in the various emotional areas.

A. The Cree Sample

1. Grade seven

The significant loadings for variables for this grade are arranged in component column form in Table 13.

Component I is determined by six variables: Distortion (K), Paranoia (Pa), Hypomania (Ma), Social Alienation (Pd4a), Ideas of External Influence (Pal), Social Alienation (Scla). Ranged in order of loading magnitude, the variable sequence is as follows:

Pa	.806
Pal	.791
K	.783
Pd4a	.524
Scla	.522
Ma	.509

Pa is defined as suspiciousness and over-sensitivity. A facet of paranoia is Pal, a tendency to place blame for personal problems, frustrations and failure outside of self. K is defined as a tendency to be defensive, to be reluctant to self-disclose. Pd4a points to the presence of feelings of isolation, lack of belongingness, and this finds support in the Scla symptom which is an absence of meaningful relationships with others. Hypomania may be described as expansiveness, disregard for social mores.

TABLE 13

Significant Principal Component Loadings for Cree Sample,
Grade Seven, N = 64

Factors								
	h^2	1	2	3	4	5	6	7
L	806					817		
F	826					591		
K	844	783						
Hs	816		598					
D	872		785					
Hy	897		513				657	
Pd	879							636
MfM	913				932			
MfF	928				933			
Pa	834	806						
Pt	864			535				
Sc	924			524				
Ma	820	509						
Si	869			577				
A	886			663				
R	869					717		
Ac	773			695				
Es	925							
Dy	802			856				
D1	899		884					
D4	834		847					
Hy2	921						869	
Pd2	887							
Pd4a	819	524						578
Pd4b	834							642
Pal	851	791						
Scl1a	805	522						
Scl1b	822							
Pr	832			583				
Age	827							
Sex	852				-698			
Per Cent Of Common	100.0	15.1	14.8	14.3	10.3	9.74	6.99	6.75
Per Cent of Total	56.3	8.46	8.31	8.05	5.92	5.43	3.92	3.81

Note.- Decimals for coefficients omitted.

These variables indicate areas of sterile self-promoting (Ma, Pd4a), of suspicious aloofness (Pa, Pal, K), and lack of rapport (Scla). The basic pattern seems to be one of withdrawal, insecurity, and hostility, which suggests the simple title of Hostility.

The second component comprises Hypochondriasis (Hs), Depression (D), Hysteria (Hy), Subjective Depression (Dl), and Mental Dullness (D4). Ranged in order of magnitude, the variables are as follows:

Dl	.884
D4	.847
D	.785
Hs	.598
Hy	.513

This grouping contains three depression indicators, i.e. D, Dl, D4, and which are defined as a lack of self-confidence, worrisomeness, introversion. Hs is a further sign of lack of energy. It is defined as tiredness, inactivity, tendency to physical complaint as a means to attach others to self. Self-dissatisfaction, need for social acceptance, articulateness, which define Hy, may be interpreted as an index of manipulation of others. Manipulative Depression is suggested as a second component title.

Psychasthenia (Pt), Schizophrenia (Sc), Social Withdrawal (Si), Anxiety (A), Achievement Need (Ac), Dependency (Dy), and Prejudice (Pr) constitute the third component. This component presents a complex contrast in elements of dependency and hostility. The high to low loading sequence for these variables is as follows:

Dy	.806
Ac	.695
A	.663
Pr	.583
Si	.577
Pt	.535
Sc	.524

The top and major segment of this loading pattern consists of non-achieving introversion (Ac) and over-reliance on others (Dy), allied with a general feeling of insecurity and inefficient functioning (A). An indicator of rigidity in the syndrome is in the presence of Pr which is described as comprising cynical distrust, dogmatism, lack of confidence in self and others. Si further highlights the dimension of lack of confidence, self-consciousness. Pt indicates an area of impulsiveness, feelings of personal and social inferiority, a desire to please, which relate it to Ac and Dy. The withdrawal tendency is also underscored by Sc which describes constraint, secretiveness apathy. A suggested title for a profile polarized around lack of self-confidence and over-dependence is Dependence-Distrust.

Component IV is made up of Masculinity Tendency (MfM), Femininity Tendency (MfF), and negatively loaded sex. Their loading sequence is as follows:

MfF	.933
MfM	.932
Sex	-.698

This variable set is an indication that females tend to have more pronounced dispositions of both masculinity and femininity, aggressive and passive inclinations. This suggests Sexual Affectivity as

a title for this component.

The fifth component comprises Lie (L), Validity (F), and Repression (R). These variables rearrange as follows:

L	.817
R	.717
F	.591

As an emotivity factor, L defines social compliance, choosing the most socially acceptable responses. R defines lack of effective insight, and feelings of being circumscribed. F points to carelessness, self-criticism. This variable triad suggests Compliance-Isolation as a label.

Component VI links Hysteria (Hy) and Affection Need (Hy2). Loadings read .657 and .869 respectively. Hy2 is an instance of Hy, from a construct point of view. Hysteria is a tendency to control others through the development of symptoms, a self-dissatisfaction, a need for others. Affection Need stresses the feeling of resentment of others and the tendency to be overly manipulative. Manipulative Resentment is a possible designation for this component.

The final component is constituted by Psychopathic Deviation (Pd), Social Alienation (Pd4a), and Self Alienation (Pd4b). In terms of magnitude of loadings, these variables regroup as follows:

Pd4b	.642
Pd	.636
Pd4a	.578

The three scales are conceptually related. Pd4b points to lack

of self-integration, dependency. Pd is indicative of rebelliousness, impulsiveness, defiant disregard of rules. Pd4a points to feelings of isolation and lack of belongingness. Pd4a and Pd4b are by definition alienation constructs. Pd accentuates a defiance factor. Since the three are about equally weighted, Alienation is presented as a title for this last component.

The seven components for this grade, to sum up, are as follows:

Component I - Hostility; Component II - Manipulative Depression;

Component III - Dependence-Distrust; Component IV - Sexual Affectivity;

Component V - Compliance-Isolation; Component VI - Manipulative Resentment; Component VII - Alienation.

2. Grade eight

The summary of significant loadings for the Cree Sample, Grade Eight, is provided by Table 14.

Eleven variables constitute Component I: Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Achievement Need (Ac), Dependency (Dy), Social Alienation (Pd4b), Ideas of External Influence (Pal), Lack of Rapport (Scla), Emotional Alienation (Sc1b), Prejudice (Pr).

The following regroups the variables in terms of high to low loadings:

Sc	.912
Scla	.859
Pt	.831
Pr	.806
Pal	.763
Pd4a	.714

TABLE 14

Significant Principal Component Loadings for Cree Sample,
Grade Eight, N = 38

		Factors						
	h^2	1	2	3	4	5	6	7
L	858							
F	885						523	
K	817					-590		
Hs	853				655			
D	925		893					
Hy	873				849			
Pd	901							853
MfM	929			896				
MfF	897			878				
Pa	901	537						
Pt	894	831						
Sc	908	912						
Ma	861							
Si	918					836		
A	796						615	
R	848							
Ac	850	569						
Es	866		-525	-627				
Dy	784	592						
D1	933		933					
D4	799		855					
Hy2	862						869	
Pd2	884							
Pd4a	839	714						451
Pd4b	834	578						484
Pa1	831	763						
Sc1a	825	859						
Sc1b	683	653						
Pr	849	806						
Age	963							
Sex	884			-875				
Per Cent of Common	100.0	25.8	13.9	11.9	8.97	7.02	6.70	5.97
Per Cent of Total	55.6	14.3	7.82	6.56	4.98	3.95	3.72	3.33

Note.- Decimals for coefficients are omitted.

Sc1b	.653
Dy	.592
Pd4b	.578
Ac	.569
Pa	.537

In terms of the Schema, it will be useful to align the variables as follows: Sc, Scla, Sc1b; Pt; Pr, Pa, Pal; Pd4a, Pd4b; Dy, Ac.

With the exception of Pt, Dy, and Ac, forms or expressions of hostility are indicated by the remaining variables. In terms of the loadings, the first four are particularly significant.

Sc designates negativism, constraint, apathy, lack of social graces, secretiveness. The presence of Scla and Sc1b bring that Sc pattern into sharper focus. Scla points to the absence of, and withdrawal from meaningful relationships with others, and Sc1b defines a lack of rapport with self, a flattening of affect. Thus, the three variables show weak social attachment. This tendency is reinforced by the presence of Pt, defined as a complex disposition towards compulsive behavior, unreasonable fear, feelings of personal and social inferiority, desire to please. The irrationality of the latter trend is supported by the presence of Pr which intimates cynical distrust, rigidity, lack of confidence in self and others. This trend is further highlighted by Pa and Pal. Pa points to the presence of suspiciousness, over-sensitivity, stubbornness, while Pal emphasizes feelings of frustration, failure, personal problems, for which blame is projected. Pr, Pa, Pal, constitute a profile segment of lack of social compliance, hostility, of emotional distance, and thus complement the Sc, Scla, Sc1b triad. Dy describes a tendency to over-rely on others, and Ac

indicates an impulsive need of the emotional non-achiever, and introversion trend. The latter two variables in context with the preceding nine round out a paradoxical pattern.

The pattern appears to be one of frustration, made up of reactive inhibited aggression, and dependency and attachment. This suggests Conflict and Anxiety as a title for Component I. It is interpreted as being essentially the same as Component I, Grade Seven, which is titled Hostility, but with here a greater degree of inclusiveness and intensity.

The second component comprises four variables: Depression (D), Subjective Depression (D1), Mental Dullness, and negatively loaded Ego Strength (Es). In terms of component loadings, the variables resequence as follows:

D1	.933
D	.893
D4	.855
Es	-.525

Component II, Grade Seven, titled Manipulative Depression, contains D1, D, and D4. For the present grade, Component II is read as indicating a higher degree of the D1, D, D4, tendency, because of the presence of the negative loading for Es. A low Ego Strength means an absence of a sense of integration, and a pattern of inhibition, anxiety, submissiveness, and repression. This accentuates a lack of energy in coping with personal problems, low self-esteem (D1), as complemented by lack of self-confidence, worrisomeness, introversion (D), unresponsiveness, distrust of one's own psychological functioning

(D4). This grade's component does not have the manipulative dimension found in that of the grade referred to above. This suggests naming this component simply Depression.

Masculinity Tendency (MfM), Femininity Tendency (MfF), and negatively loaded Ego Strength (Es), and Sex, constitute the third component. This component is very similar to Component IV, Sexual Affectivity, Grade Seven. The differentiating feature in this instance is that of the negatively loaded Es. The sequence according to loading magnitude confirms the alluded to similarity:

MfM	.896
MfF	.878
Es	-.627
Sex	-.875

The presence of Es suggests an area of considerably more struggle for self-identity, particularly as sexually defined. The pattern in this component, compared to the preceding Grade Seven, Sexual Affectivity, is seen as one of more intense maladaptive behavior. The same title is again applied.

Hysteria (Hy) and Hypochondriasis form Component IV. Their respective loadings are .655 and .849. These variables point to over-attachment and over-compliance. Hy defines self-dissatisfaction and need for social acceptance, whereas Hs, the more strongly present of the two, points to tiredness, lethargy, tendency towards physical complaint for purposes of attaching people to self. This combination suggests Manipulative Projection as a title for Component IV.

Distortion (K), which is negatively loaded, and Social With-

drawal (Si) make up Component V. These variables show loadings of $-.590$ and $.836$ respectively. The negative K indicates an absence of defensiveness, reluctance to self-disclose, modifying a strong trend towards unassertiveness, self-consciousness, feelings of social inadequacy (Si). This pairing suggests Withdrawal-Dependency as a title for Component V.

Component VI includes Validity (F), Anxiety (A), and Affection Need (Hy2). In terms of their loadings, they arrange as follows:

Hy2	.869
A	.615
F	.523

Hy2 is designated as being the focal variable. Resentment of people, over-optimism regarding others, manipulativenness (Hy2), allies readily with a carelessness trend (F), and an underlying lack of self-integration, generalized feelings of insecurity (A). There is a ressemblance between this component and Component VI, Manipulative Resentment, Grade Seven. Both components are based on Hy2. The difference between the two is viewed as one of degree. The latter component indicates more hostility. For this grade eight, Component VI intimates a greater degree of withdrawal and anxiety. Repressed Resentment is suggested as a title.

The last component contains Psychopathic Deviation (Pd), Social Alienation (Pd4a), and Self Alienation (Pd4b). These variables arrange according to loadings as follows:

Pd	.853
Pd4b	.484
Pd4a	.451

This variable set is identical to that of Component VII in the preceding grade. Whereas the facet of Pd4b was the more outstanding in the former, in this instance Pd is the sharpest. The loadings on Pd4a and Pd4b, as shown above, are slightly less than .500, the designated cut-off level. An exception was made to the established criterion because these loadings are very slightly below the fixed level, and because they do help to better identify the component. Defiant Alienation is used to indicate this component, and is seen as being of greater intensity than its twin of the previous grade.

In summary, the seven components for Grade Eight have been assigned the following titles: Component I - Conflict and Anxiety; Component II - Depression; Component III - Sexual Affectivity; Component IV - Manipulative Projection; Component V - Withdrawal Dependency; Component VI - Repressed Resentment; Component VII - Defiant Alienation.

3. Grade nine

Table 15 displays the significant principal component loadings for Grade Nine of the Cree Sample.

Sixteen variables form Component I: Distortion (K), Hypochondriasis (Hs), Psychopathic Deviation (Pd), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Anxiety (A), Subjective Depression (D1), Mental Dullness (D4), Social Alienation (Pd4a),

TABLE 15

Significant Principal Component Loadings for
Cree Sample, Grade Nine, N = 25

Factors						
	h^2	1	2	3	4	5
L	964					
F	925					
K	931	756				
Hs	850	733				
D	959			814		
Hy	919			842		
Pd	952	630				
MfM	968		867			
MfF	958		847			
Pa	958	830				
Pt	964	870				
Sc	977	850				
Ma	892	641				
Si	959				901	
A	933	626			539	
R	969					
Ac	924					842
Es	969					
Dy	909				747	
D1	977	628		689		
D4	917	779				
Hy2	981					
Pd2	857					517
Pd4a	903	819				
Pd4b	959	803				
Scal	959	906				
Sc1a	857	818				
Sc1b	881	765				
Pr	936	612				
Age	973					
Sex	960		-951			
Per Cent of Common						
Per Cent of Total						
100.0 36.2 10.9 10.7 9.77 6.53						
57.5 23.5 6.25 6.13 5.60 3.74						

Note.- Decimals for coefficients are omitted.

Self Alienation (Pd4b), Ideas of External Influence (Pal), Lack of Rapport (Scla), Emotional Alienation (Sc1b), Prejudice (Pr).

According to component loadings, these variables arrange as follows:

Pal	.906
Pt	.870
Sc	.850
Pa	.830
Pd4a	.819
Scla	.818
Pd4b	.803
D4	.779
Sc1b	.765
K	.756
Hs	.733
Ma	.641
Pd	.630
D1	.628
A	.626
Pr	.612

In terms of the Schema, the variables may be resequenced: Ma; Pd, Pd4a, Pd4b; Pa, Pal, Pr; Sc, Scla, Sc1b; D1, D4; Pt; K; A.

A major segment of that sequence is identical to one in Component I, Grade Eight. This reference is to Pd, Pd4a, Pd4b; Pal Pa, Pr; Sc, Scla, Sc1b; Pt. This sub-profile reveals an area of impulsiveness, rebelliousness, defiance, inadequacy, isolation (Pd, Pd4a, Pd4b), over-sensitivity, suspiciousness, resentfulness, rigidity (Pa, Pal, Pr), constraint, secretiveness, lack of rapport with self and others (Sc, Scla, Sc1b), feelings of inferiority, undependability, desire to please (Pt). For the Grade Nine group, the presence of K, Ma, A, D1, D4, and Hs, is interpreted as modifying this sub-profile of ten variables, and thereby differentiating it from that of Component I, Grade Eight. The difference is understood to be one only of degree.

The ten variable group constitutes both a prominent pattern of hostility and of selfish self-promoting (Pd, Pd4a, Pd4b), which is emphasized by Ma and K, indicators of activity, expansiveness, disregard for custom, carelessness, and one of insensitivity to reality (Pa, Pal, Pr, Sc, Scla, Sclb). Pt, Hs, D1, and D4, express a level of social dependency. Pt attests to tenseness, desire to please, feelings of personal and social inferiority. The inferiority facet is sharpened by the presence of low morale and self-esteem, lack of energy in coping with personal problems (D1), unresponsiveness, distrust of one's own psychological functions (D4). The self-preoccupation trend is further underscored by the presence of Hs, which describes tiredness, inactivity, tendency toward physical complaint as a means of attaching others to self.

The top seven variables in the ranked loadings indicate a rather comprehensive type of component. Paranoia (Pal, Pa). Psychasthenia, Schizophrenia, Alienation (Pd4a, Pd4b, Scla), and Depression (D4) are signified. This pattern, as well as the one described above, indicate hostility, withdrawal, anxiety. For both these reasons, it is felt that this component is basically the same as that of Factor I, Grade Eight. In this instance however it appears to indicate a more acute level of dysfunctional behavior. This suggests using again the same title, namely that of Conflict and Anxiety.

Component II comprises Masculinity Tendency (MfM), Femininity Tendency (MfF), and a negatively loaded Sex variable. In terms of loading magnitude, these rearrange as follows:

MfM	.867
MfF	.847
Sex	-.951

The variables themselves are identical to those of Component IV, Grade Seven, which is entitled Sexual Affectivity. This same title is retained here. However, the high negatively loaded Sex variable indicates a sharper sex difference, which points to females.

The third component is formed by Depression (D), Subjective Depression (D1), and Hysteria (Hy). Ranked according to loadings, the order becomes:

D	.842
Hy	.814
D1	.689

The difference between this component and that of Component II, Grade Seven, is that the latter pattern also includes Mental Dullness (D4), and Hypochondriasis (Hs). D4 and Hs indicate areas of depression and manipulation, respectively. These two dimensions are present in the above configuration (D, Hy), and their centrality in the pattern is confirmed by the loadings for each variable. The differences between this component and that of Grade Seven suggest that these two factors differ only in degree, and that this Grade Nine component is the less intense of the two. Manipulative Depression was the proposed title for Component II, Grade Seven, and is applied here.

Dependency (Dy), Social Withdrawal (Si), and Anxiety (A) constitute Component IV. Ranked according to loadings, the variable sequence is:

Si	.901
Dy	.747
A	.539

The loading on Si defines this variable as the focus of this triad. Si accentuates feelings of inadequacy and self-consciousness, and Dy defines affective need, insecurity. A indicates generalized insecurity. This component is considered to be similar to that of Component V, Grade Eight, and is felt to be a stronger form than the latter of social withdrawal, but still with an element of reliance on others. Withdrawal-Dependency is therefore retained as a suitable title for this Component IV.

The final component comprises Achievement Need (Ac) and Authority Conflict (Pd2). Their respective loadings are .842 and .517. These two are the simplest expression, thus far encountered, of the basic paradox repeatedly observed, i.e. that of dependency and hostility, of attachment and withdrawal. Ac is indicative of impulsiveness, over-dependence on others, introversion, and Pd2 expresses resentment of societal demands and standards. Reactive Dependency is proposed as the title for Component V.

In summary, the five principal components for Grade Nine are as follows: Component I - Conflict and Anxiety; Component II - Sexual Affectivity; Component III - Manipulative Depression; Component IV - Withdrawal-Dependency; Component V - Reactive Dependency.

4. Summary

Table 16 and 17 provide summaries of the principal component titles, and of the variable loadings. In both, components are distributed according to the similarities between components as described in the preceding analyses.

TABLE 16

Principal Component Titles for All Grades, Cree Sample

Grade 7	Grade 8	Grade 9
Hostility (I)	Conflict & Anxiety (I)	Conflict & Anxiety (I)
Manipulative Depression (II)	Depression (II)	Manipulative Depression (III)
Dependence- Distrust (III)		
Sexual Affectivity (IV)	Sexual Affectivity (III)	Sexual Affectivity (II)
Compliance- Isolation (V)		
Manipulative Resentment (VI)	Repressed Resentment (VI)	
Alienation (VII)	Defiant Alienation (VII)	
	Manipulative Projection (IV)	
	Withdrawal- Dependency (V)	Withdrawal- Dependency (IV)
		Reactive Dependency (V)

Note.- Roman numerals in brackets indicate the component number.

Table 17

Summary of Significant Loadings for Cree Sample

Grade	7	8	9	7	8	9	7	7	8	9	7	7	8	7	8	8	8	9	9
Component	1	1	1	2	2	3	3	4	3	2	5	6	6	7	7	4	5	4	5
L											*								
F											*		*						
K	*		*															-	
Hs			*	*												*			
D				*	*	*													
Hy				*		*						*				*			
Pd			*												*	*			
MfM								*	*	*									
MfF								*	*	*									
Pa	*	*	*																
Pt		*	*				*												
Sc		*	*				*												
Ma	*		*																
Si							*										*	*	
A			*				*						*					*	
R											*								
Ac		*					*												*
Es					-					-									
Dy		*					*											*	
D1			*	*	*	*													
D4			*	*	*														
Hy2												*	*						
Pd2																			*
Pd4a	*	*	*												*	*			
Pd4b		*	*												*	*			
Pa1	*	*	*																
Sc1a	*	*	*																
Sc1b		*	*																
Pr		*	*				*												
Age																			
Sex								-	-	-									
Totals:	7	6		5			7	3			3	2		3					
	8	11		4				4				3		3		2		2	
	9	16		3				3									3		2

Note.- Hyphen (-) indicates negative loading.

Examination of the two Tables reveals several distinct patterns which warrant a tentative postulate. Component I is common to all three grades. The difference between the three grades was interpreted as being solely one of degree. The Conflict and Anxiety syndrome was observed as becoming more sharply and intensely defined with the change in grades. This shared component, it is proposed, of its nature suggests an alienation set - all three instances share Paranoia (Pa), Ideas of External Influence (Pal), Social Alienation (Pd4a, and lack of Rapport (Scla). These four express the essential alienation traits already defined, i.e. inadequacy of ego, correlated with limited ability in social relationships. The four variable combination suggests the possibility of a more discriminatory alienation measure.

Further evidence of a variable sub-structure indicating a second and complementary dimension of maladaptive trend is suggested by other of the components.

Component II (Grades seven and eight), and Component III (grade nine) are depressive profiles. In all three cases the shared variables are Depression (D), and Subjective Depression (D1). These two variables describe a complex symptom of lack of confidence, worrisomeness, poor morale, introversion, lack of energy in coping with problems. This depression component contrasts with that of Conflict and Anxiety inasmuch as the prime focus of the former is on the inner condition of the self, and the latter is relatively more defined by hostile relationship to others.

A final shared pattern is that of Sexual Affectivity. It

appears as a female difficulty in all three grades. This component indicates a basic problem area - confusion exists between masculine and feminine dimensions of personality within a same sex.

There are two further sets of shared component characteristics. These are between pairs of grades. Component VII is found in grades seven and eight. It is an alienation dimension. As compared with Component I, the latter is viewed as being a more specific and limited form of alienation. This component is considered to be an inner-state oriented factor. A second shared syndrome is found between grades eight and nine in Components V and IV. Both bear the name of Withdrawal-Dependency, which describes a largely other-oriented behavior trend. The remaining components are peculiar to individual grades.

Examination of these findings in light of the hypothesis is reserved for the conclusion following the White principal components analyses. The intention, thus far, has been to attempt a discernment of whatever basic underlying configuration(s) of variables is observable when 29 measures of Cree Indian personality were obtained for three separate grades, and for purposes of deriving a simpler description of its behavior. The construct analysis of the component patterns, and as related to variable loading magnitude, provides very tentative support to the statement that one shared characteristic is that of alienation, with corollaries of depression and confused sexual affectivity. The recurring differences between the grades on these components was interpreted as being one of degree only. In light of the very small samples dealt with, e.g. grade nine N is 25, the expecta-

tion was towards few distinct components. The similarity of personality pattern appears to be striking.

The discussion of possible trend towards a generalized or universal behavioral pattern is continued in the final summary to this chapter.

B. The Blood Sample

1. Grade seven

Table 18 reports the significant principal component loadings for this grade. Component I is determined by the following 15 variables: Validity (F), Hypochondriasis (Hs). Psychopathic Deviation (Pd), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Anxiety (A), Dependency (Dy), Subjective Depression (Dl), Social Alienation (Pd4a), Self Alienation (Pd4b), Ideas of External Coercion (Pal), Lack of Rapport (Scla), Emotional Alienation (Sc1b). The 15 align according to loading size as follows:

Sc	.899
Pal	.856
Pa	.834
Pd	.818
Pd4b	.810
Pd4b	.804
F	.800
Scla	.798
A	.756
Sc1b	.755
Pt	.699
Dy	.674
Ma	.625
Hs	.582
Dl	.571

TABLE 18

Significant Principal Component Loadings for
Blood Sample, Grade Seven, N = 76

		Factors				
	h^2	1	2	3	4	5
L	890		759			
F	848	800				
K	828		851			
Hs	842	582				
D	908		679		508	
Hy	889		711			
Pd	888	818				
MfM	960			925		
MfF	952			951		
Pa	903	834				
Pt	870	699				
Sc	949	899				
Ma	870	625				
Si	943					
A	858	756				
R	831		779			
Ac	901					912
Es	876					
Dy	833	674				
Dl	923	571			616	
D4	862				730	
Hy2	850		817			
Pd2	920					
Pd4a	897	804				
Pd4b	836	810				
Pal	867	856				
Scla	862	798				
Sclb	860	755				
Pr	827		-545			
Age	870					452
Sex	885			-522		
Per Cent of Common	100.0	36.4	17.2	8.55	7.53	5.55
Per Cent of Total	58.8	21.4	10.1	5.04	4.43	3.26

Note.- Decimals are omitted for coefficients.

This component is almost identical to that of Component I, Grade Nine, Cree Sample. The two components share Ma, Pd, Pd4a, Pd4b, Pa, Pal, Sc, Scla, Sc1b, D1, Pt, Hs, and A. The Cree component has, in addition to the preceding, Pr, D4, and K, whereas this component has Dy and F. The Cree syndrome displays a sharper facet of hostility in the presence of rigidity and distrust (Pr), secretiveness (K), unresponsiveness (D4), whereas that of the Blood points to a relatively greater tendency to attachment (Dy), and less rigidity - a carelessness (F). This Blood component indicates slightly more openness, yet this pattern is essentially one of considerable constraint, which again suggests the title of Conflict and Anxiety.

Component II is made up of Lie (L), Distortion (K), Hysteria (Hy), Repression (R), Affection Need (Hy2), and negatively loaded Prejudice (Pr). According to loadings they rank as follows:

K	.841
Hy2	.817
R	.779
L	.759
Hy	.711
D	.679
Pr	-.545

The crucial variables, in terms of concept and loadings, are seen to be Hy2, R, Hy, and D. They constitute a social dependency pattern. Hy2 indicates an over-striving for emotional support and reinforcement, a resentment of others. Hy describes a need for social acceptance, a tendency to control through the development of symptoms, self-dissatisfaction. D defines a lack of self-confidence, worrisome-

ness, introversion. R points to feelings of being secluded, held back by circumstance, lack of effective self-insight. The social dimension of this four variable set is further emphasized by L which defines a tendency to be socially acceptable. This compliance is accentuated in turn by the negatively loaded Pr which indicates a relative absence of rigidity and distrust, relative to K, an indicator of a reluctance to self-disclose. It is felt that this component is basically similar to Component III, Grade Nine, Cree Sample, which is constituted by D, D1, and Hy. For that reason, Component II, Grade Seven, Blood Sample, is identified as Manipulative Depression. The difference between the two components is the usual one of difference only in degree, or intensity. Component II for this grade is the sharper of the two.

Component III comprises Masculinity Tendency (MfM), Femininity Tendency (MfF), and negatively loaded Sex. Rearranged according to loadings they sequence:

MfM	.951
MfM	.925
Sex	-.521

This pattern is similar to the Sexual Affectivity component found in the Cree Sample.

The fourth component comprises Depression (D), Subjective Depression (D1), and Mental Dullness (D4). In terms of loadings, the variables group:

D4	.730
D1	.616
D	.508

This variable set resembles that of Component II, Grade Eight, Cree Sample. The one difference is that the latter includes a negatively loaded Ego Strength. Depression was proposed then as title, and is also applied here. The two components differ in degree of intensity, with this expression of depression being the less of the two.

The final component comprises Achievement Need and Age. This component indicates a pattern of over-dependence and impulsiveness with increase in age. The suggested title is Achievement Need.

In summary, the Blood Grade Seven components are: Component I - Conflict and Anxiety; Component II - Manipulative Depression; Component III - Sexual Affectivity; Component IV - Depression; Component V - Achievement Need.

2. Grade eight

Eleven variables yielded significant loadings (see Table 19): Validity (F), Psychopathic Deviation (Pd), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Social Alienation (Pd4a), Self Alienation (Pd4b), Ideas of External Coercion (Pal), Lack of Rapport (Scla), Emotional Alienation (Sc1b).

Arranged according to loading size the variables rank as follows:

TABLE 19

Significant Principal Component Loadings for Blood Sample,
Grade Eight, N = 56

		Factors						
	h^2	1	2	3	4	5	6	7
L	914							
F	798	821						
K	864				782			
Hs	837						783	
D	898		840					
Hy	921						713	
Pd	817	695						
MfM	882			848				
MfF	951			867				
Pa	844	772						
Pt	861	503						
Sc	911	741						
Ma	803	595						
Si	803							800
A	842						513	
R	849				649			
Ac	843					834		
Es	854				695			
Dy	837							566
D1	922		876					
D4	842		811					
Hy2	874							
Pd2	917							
Pd4a	853	687						
Pd4b	769	672						
Pal	915	893						
Scl1a	859	680						
Scl1b	702	662						
Pr	915					728		
Age	929							
Sex	867			-787				
Per Cent of Common								
		100.0	24.2	12.1	9.55	8.87	8.80	7.15
Per Cent of Total								
		56.0	13.5	6.78	5.33	4.95	4.90	4.08

Note.- Decimals for coefficients are omitted.

Pal	.893
F	.821
Pa	.772
Sc	.741
Pd	.695
Pd4a	.687
Slca	.680
Pd4b	.672
Sclb	.662
Ma	.595
Pt	.503

The 10 variable sub-profile is observable in the above, i.e. Ma, Pt, Pd, Pd4a, Pd4b, Pa, Pal, Sc, Scla, Sclb. This pattern has been delineated before in discussions regarding Component I, Grade Nine, Cree Sample, and Component I, Grade Seven, Blood Sample. It is a clear indicator of aggressiveness, hostility, emotional distance, limited relationships. For this grade, F is the one sole modifying variable of that syndrome. F emphasizes carelessness, self-criticism. It has a slightly higher loading than the corresponding Blood, Grade Seven component. It does not however warrant considering this component to be basically different than preceding Component I's. Conflict and Anxiety is therefore again the applied title.

Component II is very similar to Component IV, Grade Seven, Blood Sample. Depression is the retained title.

Component II is identical to Component III, Grade Seven, Blood Sample. According to its loading Sex in this Sexual Affectivity dimension indicates a more severe level of difficulty.

MfF	.867
MfM	.848
Sex	-.787

Repression (R), Distortion (K), and Ego Strength (Es) constitute the fourth component. In terms of loading magnitude, the variables rank:

K	.782
R	.649
Es	.695

This component is found to be similar to Compliance-Isolation of Grade Seven, Cree Sample. L and K resemble each other in their aspects of defensiveness. Repression describes lack of effective self-insight, feelings of being excluded and held back by circumstances. The presence of Es in this set suggests a relatively stronger sense of self-integration. This profile is seen as being a milder form of Compliance-Isolation behavior.

The fifth component is made up of Achievement Need (Ac) and Prejudice (Pr). Ac defines impulsiveness, over-dependence. The presence of distrust, rigidity, lack of confidence in self and others (Pr) suggests a less acute form of Reactive Dependency (Component V, Grade Nine, Cree Sample). The latter title is retained here. The loading pattern confirms the similarity: Ac - .834; Pr - .728.

Component VI strongly resembles Manipulative Projection, Grade Eight, Cree Sample. Loadings are as follows:

Hs	.783
Hy	.713
A	.513

The presence of A suggests a sharper degree of Manipulative Projection.

Dependency (Dy) and Social Withdrawal (Si) form the seventh component. .566 and .800 are their respective loadings. This Si-Dy set is seen as being less severe than that of the Cree Seven Withdrawal-Dependency component (Si-Dy-A).

In summary, the seven components were labelled as follows:
 Component I - Conflict and Anxiety; Component II - Depression; Component III - Sexual Affectivity; Component IV - Compliance-Isolation; Component V - Reactive Dependency; Component VI - Manipulative Projection; Component VII - Withdrawal-Dependency.

3. Grade nine

The significant principal component loadings for this grade are set forth in Table 20.

Seventeen variables constitute Component I: negatively loaded Lie (L), Validity (F), negatively loaded Distortion (K), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Anxiety (A), negatively loaded Repression (R), Dependency (Dy), negatively loaded Affection Need (Hy2), Social Alienation (Pd4a), Self Alienation (Pd4b), Ideas of External Coercion (Pal), Lack of Rapport (Scla), Emotional Alienation (Sclb), Prejudice (Pr).

When ranked in terms of loading magnitude, the variables sequence:

TABLE 20

Significant Principal Component Loadings for
Blood Sample, Grade Nine, N = 32

Factors						
	h^2	1	2	3	4	5
L	869	-542			-669	
F	936	861				
K	937	-867				
Hs	938					686
D	953		796			
Hy	958					663
Pd	912		520			
MfM	989			928		
MfF	976			936		
Pa	918	585	687			
Pt	934	820				
Sc	953	881				
Ma	944	648				
Si	930			578		
A	909	822				
R	909	-617				
Ac	948					
Es	947					
Dy	938	819				
D1	936		820			
D4	916		774			
Hy2	869	-848				
Pd2	925				923	
Pd4a	874	805				
Pd4b	946	862				
Pa1	923	803				
Sc1a	917	784				
Sc1b	869	772				
Pr	920	917				
Age	942					-888
Sex	964					
Per Cent of Common	100.0	40.9	14.9	11.2	7.05	6.85
Per Cent of Total	56.3	22.9	8.43	6.25	3.93	3.82

Note.- Decimals for coefficients are omitted.

Pr	.917
Sc	.881
Pd4b	.862
F	.861
A	.822
Pt	.820
Dy	.819
Pd4a	.805
Pal	.803
Scla	.784
Sclb	.772
Ma	.648
Pa	.585
L	-.542
R	-.617
Hy2	-.848
K	-.867

The now familiar sub-pattern of Ma, Pd, Pd4a, Pd4b, Pa, Pal, Sc, Scla, Sclb, Pt, is apparent here. The loading pattern is approximately the same as those of preceding first components. The sub-profile is qualified by L, K, R, Hy2, which are negatively loaded, and Dy, Pr, F, and A. In terms of the Schema, R, Dy, and Hy2, are conceptually related. The negative loading on Hy2 indicates less manipulateness and greater need of others (Dy). The negatively loaded L and K suggest more independence (L), and less reluctance to self-disclose. Pr, which heads the loading list, and is allied to the Pa group, emphasizes a rigidity-distrust, lack of confidence in self and others. A is pervasive in nature, and accentuates a feeling of insecurity.

These latter variables, together with the indicated sub-pattern, present a picture that is somewhat more pronounced than any of the first components examined so far. This component, however, is recognized as being substantially the same in content as, for example, Component I,

found in Grade Nine, Cree Sample, and Grade Seven, Blood Sample.

Conflict and Anxiety is therefore the retained title.

Component II is similar to previous Depression components. Pa and Pd complete the usual depression triad of D, D1, D4. Rebelliousness (Pd) and over-sensitivity (Pa) given an edge of hostility to the depression pattern. Hostile Depression is suggested as the title for this factor. The loading sequence confirms the familiar D1-D-D4 sequence:

D1	.820
D	.796
D4	.774
Pa	.687
Pd	.520

Masculinity Tendency (MfM), Femininity Tendency (MfF), and Social Withdrawal (Si), form the third component. The sequenced loadings read:

MfF	.936
MfM	.928
Si	.578

This pattern is essentially similar to previous Sexual Affectivity components. A Sex loading of .185 suggests a female dysfunctional trend, which is, however, not as pronounced as that in any of the previous MfM-MfF dimensions. The presence of Si suggests a relatively constrained mode of masculine-feminine affectivity.

The negative loading on L, paired with Pd2, accentuates the Pd2 trend. Respective loadings are $-.669$, and $.923$. There is less of a tendency to be socially acceptable (L), allied with one of

resentment of societal demands and standards (Pd2). This suggests Authority Conflict as a title for Component IV.

Manipulative Projection (IV, Grade Eight, Cree Sample) was defined as comprising Hy and Hs. In this grade, a negatively loaded Age is found related with Hy and Hs. This indicates that the Hy-Hs pair is stronger in expression at lower ages. The above title is suggested for this component.

In summary, the principal component titles read as follows:
 Component I - Conflict and Anxiety; Component II - Hostile Depression;
 Component III - Sexual Affectivity; Component IV - Authority Conflict;
 Component V - Manipulative Projection.

4. Summary

A resume of principal component titles, and of significant component variables, are provided by Tables 21 and 22. As in the Cree Sample, components are arranged according to the similarities between components.

Again several distinct patterns emerge from comparisons of the components. Conflict and Anxiety is found in all three grades, as in the three grades of the previous sample. Differences between grades is defined as one of degree. The same reasons presented earlier (cf. supra, p. 123) tentatively support the proposal that this conflict-anxiety pattern describes an alienation set.

A second shared characteristic is that of Depression. This phenomenon was found in the previous sample. The syndrome is one of lack

TABLE 21

Principal Component Titles for All Grades, Blood Sample

Grade 7	Grade 8	Grade 9
Conflict & Anxiety (I)	Conflict & Anxiety (I)	Conflict & Anxiety
Manipulative Depression (II)		
Sexual Affectivity (III)	Sexual Affectivity (III)	Sexual Affectivity (III)
Depression (IV)	Depression (II)	Hostile Depression (II)
Achievement Need (V)		
	Compliance-Isolation (IV)	
	Reactive Dependency (V)	
	Manipulative Projection (VI)	Manipulative Projection (V)
	Withdrawal Dependency (VII)	
		Authority Conflict (IV)

Note.- Roman numerals in brackets indicate component number.

of self-confidence, of introversion. There are slight variations in the intensity of this component between the grades.

A final shared behavior is that of Component III. Sexual Affectivity is defined as a female difficulty, an area of confusion

TABLE 22

Summary of Significant Loadings for Blood Sample

Grade	7	8	9	7	7	8	9	7	8	9	7	8	8	8	9	8	9
Component	1	1	1	2	3	3	3	4	2	2	5	4	5	6	5	7	4
L			-	*													*
F	*	*	*														
K			-	*								*					
Hs	*													*	*		
D								*	*	*							
Hy				*										*	*		
Pd	*	*		*						*							
MfM					*	*	*										
MfF					*	*	*										
Pa	*	*	*							*							
Pt	*	*	*														
Sc	*	*	*														
Ma	*	*	*														
Si																	*
A	*		*				*							*			
R			-	*								*					
Ac											*		*				
Es												*					
Dy	*		*														*
D1	*							*	*	*							
D4								*	*	*							
Hy2			-	*													
Pd2																	*
Pd4a	*	*	*														
Pd4b	*	*	*														
Pal	*	*	*														
Scla	*	*	*														
Sc1b	*	*	*														
Pr			*	-									*				
Age											*					-	
Sex					-	-	-										
Totals:	7	15		7	3			3		2							
	8	11			3			3				3	2		3	2	
	9	17			3			5							3		2

Note.- Hyphen (-) indicates negative loading.

with reference to the masculine and feminine factors in affectivity direction.

Grades eight and nine share a Manipulative Projection component, which resembles that which appeared in the Cree Sample, Grades Seven and Eight. The remaining factors are unique to each of the grades. All three groups are marked by anxiety, but Seven seems to display a restless depression, Eight greater inhibition, and Nine a hostile independence. Again, it should be noted that, given the sample sizes there is remarkable similarity in the components.

As in the preceding Cree conclusion, application of the above findings, in terms of the Hypothesis, is reserved for the following analysis of White principal components.

C. The White Sample

1. Grade eight

Table 23 reports the significant principal component loadings for grade eight. Component I is defined by 15 variables: Validity (F), Hypochondriasis (Hs), Hysteria (Hy), Psychopathic Deviation (Pd), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Social Withdrawal (Si), Anxiety (A), Mental Dullness (D4), Social Alienation (Pd4a), Self Alienation (Pd4B), Ideas of External Coercion (Pal), Lack of Rapport (Scla), Prejudice (Pr).

Determined by loading magnitude, these variables regroup as follows:

TABLE 23

Significant Principal Component Loadings for
White Sample, Grade Eight, N = 54

	h ²	Factors				
		1	2	3	4	5
L	948					
F	905	851				
K	888			821		
Hs	886	624				
D	941		794			
Hy	898	536		526		
Pd	897	751				
MfM	952				943	
MfF	962				926	
Pa	924	756				
Pt	963	573	529			
Sc	958	814				
Ma	896	744				
Si	919		845			
A	919	532				
R	854		570	530		
Ac	905					
Es	878					868
Dy	900					
D1	935		861			
D4	817	536	586			
Hy2	890			895		
Pd2	841					820
Pd4a	839	601				
Pd4b	872	627				
Pa1	906	910				
Sc1a	830	787				
Sc1b	859					
Pr	837	535				
Age	899					
Sex	876					
Per Cent of Common						
		100.0	28.6	16.8	10.5	9.91
Per Cent of Total						
		54.7	15.7	9.24	5.79	4.95

Note.- Decimals for coefficients are omitted.

Pa1	.910
F	.851
Sc	.814
Scla	.787
Pa	.756
Pd	.751
Ma	.744
Pd4b	.627
Hs	.624
Pd4a	.601
Pt	.573
Hy	.536
D4	.536
Pr	.535
A	.532

The familiar 10 variable sub-pattern is apparent here.

The total profile resembles that of Component I, Grade Seven, Blood Sample. The above does not contain D1 and Sc1b, as in the referred to component, but has instead Pr and D4. Since D1 and D4 are similar, the one difference lies in the presence of Pr in the present grade, and Sc1b in the Blood grade. Yet it could be argued that the latter two are similar from the point of view that they both contain an element of lack of confidence in self and in others. The shared characteristics justify again using Conflict and Anxiety as a title for Component I.

Component II comprises Psychasthenia (Pt), Repression (R), Social Withdrawal (Si), and the Depression triad: D, D1, D4. Arranged according to high-low loadings, the variable order becomes:

D1	.861
Si	.845
D	.794
D4	.586
R	.570
Pt	.529

This combination suggests an introverted pattern of depression. Feelings of social inadequacy (Si), together with feelings of being excluded and bound in by circumstances, and lack of self-insight (R), plus feelings of inferiority (Pt), indicate a strong withdrawal tendency. The position of Si in the loading sequence appears to confirm this interpretation. This six variable set is considered to be the strongest expression of depression thus far encountered. Introverted Depression is proposed as a title for Component II.

The third factor is made up of Distortion (K), Hysteria (Hy), Affection Need (Hy2), and Repression (R). In terms of loadings, these variables arrange as follows:

Hy2	.895
K	.821
R	.530
Hy	.526

The loading on Hy2 indicates its focal position in this profile. Hy2 focusses on a tendency to over-strive for emotional support and reinforcement. This trend is reinforced by K, which indicates a reluctance to self-disclose, which in turn complements the area of feeling excluded, circumscribed, of lack of effective self-insight (R). Hy expresses self-dissatisfaction, need for social acceptance, manipulation of others to that end. It is a special instance of Hy2. This set is seen as being essentially like Manipulative Resentment (Cree, Seven). It is considered to be a more intense expression of that component. Manipulative Resentment is therefore retained as a title for Component III.

Component IV, constituted by Masculinity Tendency (MfM), Femininity Tendency (MfF), is very similar to Sexual Affectivity of the preceding grades. A loading of $-.328$ suggests a female dysfunctional trend in this emotional area. Sexual Affectivity remains as the component label.

Because of the presence of a positively loaded Ego Strength ($.868$) together with the Authority Conflict ($.820$) variable, it is suggested that the latter be title for this component. The Es-Pd2 combination is interpreted as being a less reactive expression of resentment of authority than the same component in Blood Nine, which is made up of a negatively loaded L and Pd2.

In summary, the component labels for this grade are as follows: Component I - Conflict and Anxiety; Component II - Introverted Depression; Component III - Manipulative Resentment; Component IV - Sexual Affectivity; Component V - Authority Conflict.

2. Grade nine

The significant factor loadings for this grade are reported in Table 24. Twelve variables compose Component I: Validity (F), Psychopathic Deviation (Pd), Paranoia (Pa), Psychasthenia (Pt), Schizophrenia (Sc), Hypomania (Ma), Subjective Depression (D1), Social Alienation (Pd4a), Self Alienation (Pd4b), Ideas of External Coercion (Pa1), Lack of Rapport (Scla), Emotional Alienation (Sclb). According to loading magnitude, these sequence:

TABLE 24

Significant Principal Component Loadings for
White Sample, Grade Nine, N = 47

		Factors					
	h^2	1	2	3	4	5	6
L	934						
F	867	664					
K	851		-814				
Hs	881					706	
D	888				626		
Hy	910					785	
Pd	879	725					
MfM	949			913			
MfF	956			953			
Pa	939	827					
Pt	895	585	658				
Sc	959	792					
Ma	879	645					
Si	897						520
A	900		703				
R	921						836
Ac	959						
Es	880						
Dy	934		736				
Dl	903	537					
Dr	860				665		
Hy2	877		-859				
Pd2	967						
Pd4a	920	616					
Pd4b	920	729					
Pal	894	844					
Scla	919	858					
Sclb	869	688					
Pr	897		828				
Age	893				814		
Sex	879			-817			
Per Cent of Common	100.0	27.2	20.2	10.8	9.23	7.45	5.37
Per Cent of Total	54.3	15.1	11.2	6.26	5.12	4.12	2.98

Note.- Decimals of coefficients are omitted.

Scla	.858
Pal	.844
Pa	.827
Sc	.792
Pd4b	.729
Pd	.725
Sclb	.688
F	.664
Ma	.645
Pd4a	.616
Pt	.585
Dl	.537

Again, in this component the Ten Variable relationship is observable. This profile is quite similar to that of Component I, Grade Eight, Blood Sample. The loading range is grossly the same, as well. This White dimension contains Dl, a depression factor, in addition. This variable describes poor morale, low self-esteem, lack of energy in coping with problems, and serves to modify somewhat the hostility-conflict-anxiety pattern of the ten variables. As before, the Conflict and Anxiety title is judged suitable for this Component I.

The focal variable in Component II is Prejudice, which denotes a rigid, cynical distrust of others and self. It is accompanied by Dy, A, Pt, and negatively loaded K and Hy2. This combination of variables suggests Dependence-Distrust, a title employed in Cree Seven. This White set is considered to be less severe, given the negative loadings on K and Hy2. Excessive reliance on others (Dy), a pervasive sense of insecurity and lack of confidence in one's own abilities (Pr), further underscored by Pt, a need to self disclose (-K), together with a non-striving for support and reinforcement (-Hy2), suggest aloofness and social dependence. The sequence of

variables according to loadings is as follows:

Pr	.828
Dy	.736
A	.703
Pt	.658
K	-.814
Hy2	-.859

Component III, comprising Masculinity Tendency (MfM), Femininity Tendency (MfF), and negatively loaded Sex, has been previously identified as Sexual Affectivity. Loadings are .913, .953, -.817, respectively.

The alliance of Depression (D), Mental Dullness (D4), and Age, indicates a milder form of the familiar D-D1-D4 triad. A characteristic emphasis of D-D4 here is indicated by the loading on Age. The loading sequence is:

Age	.814
D4	.665
D	.626

This set suggests that lack of confidence (D) and distrust of self (D4) are more severe with older students. Depression remains as title for this component.

Hysteria (Hy) and Hypochondriasis (Hs) form Component V. Their respective loadings are .785 and .706. This pairing indicates a similarity with Manipulative Projection in Blood Eight. The White set suggests a milder form of that behavior.

The final component is made up of Repression (R) and Social Withdrawal (Si). Respective loadings are .836 and .520, showing that

R is clearly dominant. The Si loading suggests a resemblance with Withdrawal-Dependency of Blood Eight. The R presence here however suggests Repressed Withdrawal as a title for Component IV.

In summary, the components read as follows: Component I - Conflict and Anxiety; Component II - Dependence-Distrust; Component III - Sexual Affectivity; Component IV - Depression; Component V - Manipulative Projection; Component VI - Repressed Withdrawal.

3. Summary

Table 25 presents a listing of the suggested principal component titles, and Table 26 shows a summary of the significant variables per component per grade.

As in the previous samples, a similar pattern of shared characteristics appears in this White sample. Both grades have the Conflict and Anxiety component, the Sexual Affectivity component, and a Depression dimension. The remaining components are individual grade behaviors. Several of these were found to be quite similar to components found in the Indian samples. Some of the resemblances are referred to underneath each of the component titles in Table 25.

With White Eight II being the exception, it was found that the variable sets of this sample, when compared with similar Indian patterns, appeared to be less severe. In terms of the Schema, the White profiles in these comparisons reveal a greater degree of repression or introversion. With regard to the Conflict and Anxiety, Sexual Affectivity, and Depression components on an inter-sample basis, the similarities become striking.

TABLE 25

Principal Component Titles for All Grades,
White Sample

Grade 8	Grade 9
Conflict & Anxiety (I) (in all grades)	Conflict & Anxiety
Introverted Depression (II)	Depression (IV) (Blood 7 - IV)
Manipulative Resentment (III) (Cree 7 - VI)	
Sexual Affectivity (IV) (in all grades)	Sexual Affectivity (III)
Authority Conflict (V) (Blood 9 - IV)	
	Dependence- Distrust (II) (Cree 7 - VII)
	Manipulative Projection (V) (Blood 8 - VI)
	Repressed Withdrawal (VI) (Blood 8 - VII)

Note.-Roman numerals in brackets indicate the component number.

TABLE 26

Summary of Significant Loadings for White Sample

Grade	8 9	8 9	8	8 9	8	9	9	9
Component	1 1	2 4	3	4 3	5	2	5	6
L								
F	* *							
K			*			-		
Hs	*						*	
D		*						
Hy	*	*	*				*	
Pd	* *							
MfM				* *				
MfF				* *				
Pa	* *							
Pt	* *	*				*		
Sc	* *							
Ma	* *							
Si		*						*
A	*					*		
R		*	*					*
Ac								
Es					*			
Dy							*	
D1		*	*					
D4	*	* *						
Hy2			*			-		
Pd2					*			
Pd41	* *							
Pd4b	* *							
Pa1	* *							
Scla	* *							
Sc1b	*							
Pr						*		
Age		*						
Sex					-			
Totals:	8 9	15 12	6 3	4	2 3	2	6 2	2

Note.- Hyphen (-) indicates negative loading.

As in the summary to the Cree and Blood analyses, the principal component results here, for the same reasons, are interpreted as delineating both the presence and nature of an alienation syndrome.

D. Summary of Principal Component Interpretations

As just referred to, there are communalities between the eight groups or grades. With the exception possibly of Cree Seven I, Conflict and Anxiety appears as a relatively clear pattern across all grades. The same seems to apply to Sexual Affectivity. Depression as well was found to be essentially present in all groups, nuances from grade to grade notwithstanding. Appearing frequently, but not consistently through the grades were Isolation, Resentment, Alienation, Manipulation, and Withdrawal factors.

These tentative findings are suggestive, and require further investigation. Purification of the component scales in a second round of testing would better identify the sources of variation. The shared characteristics, the principal components, appear to identify for the moment some of the major sources of behavior variation.

To this point, the content of the components, particularly of Component I has been described as indicative of alienation. It is felt that, in addition to Conflict and Anxiety dimension, the remaining components as observed through the groups, point to complementary facets or related instances of the global alienation complex. It is also felt that the resemblance of component patterns between the

Indian and White groups indicates a situation of degree or divergence, rather than one of substantial difference, thus confirming the interpretation drawn in the analysis of variance.

CHAPTER VII

Repeated Measures

Results and Discussion

The third section of the hypothesis states that for a subgroup of the Blood Sample, for whom longitudinal data were obtained, there are no significant changes in personality configuration trend. To ascertain the validity of that contention, an analysis of variance was applied to MMPI data gathered in 1968 and 1969 at St. Mary's Indian School, Blood Reserve. Students from grades seven and eight, 1968, constituted grades eight and nine, 1969. In the repeated measures process, Seven 1968 was compared with Eight 1969, and Eight 1968 was compared with Nine 1969, for purposes of establishing the presence of change, if any, and the direction of any observed change. Table 27 presents the numbers of subjects by grade and sex. Since the numbers are small, few significant results were anticipated. Full repeated measures data are located in Appendix E.

TABLE 27

Subjects by Grade and Sex

	7-8	8-9
Male	8	7
Female	12	8
N	20	15

In this analysis, main effects are subjects, comprising two levels, i.e. male, female, and trials or repeated measures, i.e. 1968, 1969. Two sets of trials' data were considered - Grade Seven-Eight (1968-1969), and Grade Eight-Nine (1968-1969). N for the Seven-Eight group was 15 (7 M, 8 F), and 20 (8 M, 12F) for the Eight-Nine group. Note that the N are relatively small, and will have a bearing on the interpretation of results.

1. Seven-eight results

When the Seven-Eight data were tested, significant differences appeared on six variables - Masculinity Tendency (MfM), Femininity Tendency (MfF), Achievement Need (Ac), Subjective Depression (Dl), Self-alienation (Pd4b), Prejudice (Pr). Table 28 reports the areas and levels of probability, and the cell means obtained.

With the exception of Ac, the remaining five variables have means displaying differences between the two sexes. Female means are higher than those of males on MfM, MfF, Dl, Pd4b, and Pr. This indicates that greater difficulty is experienced by females than males in these emotional areas at both measurement times. Ac reveals a trials main effect, which shows that between the two moments of measurement, an increase in behavioral difficulty was experienced by the same group, as evidenced by the increase in means. This trend characterizes both sexes, but is more pronounced for females. Ac defines an impulsive, introvertive tendency, and over-dependence on others.

Interaction effects appear on MfM, and MfF, to a significant degree, and also on Dl as a visual trend. Male means tend to decrease,

TABLE 28

Repeated Measures - Probabilities, Cell Means,
for Blood Sub-Sample, Grade 7-8

Variables	Level of Signifi- cance	Sex	Cell Means	
			1968	1969
<hr/>				
<u>MfM</u>				
Between Subjects:		M	24.4	21.1
Sex Effect	.02	F	25.8	29.9
Within Subjects:				
Interaction	.01			
<hr/>				
<u>MfF</u>				
Between Subjects:		M	26.4	22.1
Sex Effect	.01	F	26.5	30.8
Within Subjects:				
Interaction	.01			
<hr/>				
<u>Ac</u>				
Within Subjects:		M	12.6	13.5
Time Effect	.03	F	12.5	15.6
<hr/>				
<u>Dl</u>				
Between Subjects:		M	9.75	8.88
Sex Effect	.02	F	11.3	13.1
<hr/>				
<u>Pd4b</u>				
Between Subjects		M	4.63	5.38
Sex Effect	.05	F	7.42	7.42
<hr/>				
<u>Pr</u>				
Between Subjects:		M	16.4	16.4
Sex Effect	.05	F	20.2	18.7

whereas female means show an opposite tendency. Female and male means are invariant, or virtually unchanging on Pd4b, and Pr. Male means are relatively stable on Ac and D1. Female means tend to increase on MfM, MfF, Ac, and D1.

The broad characteristic thus that appears for males is dominantly one of stability of means with a tendency in two areas towards decrease, whereas that of females is one of increase.

No significant changes were observed on the remaining 23 personality variables.

2. Eight-nine results

When the Eight-Nine variables were examined, eight revealed significant effects variation. Variation occurred in the area of sex as a main effect on the following scales: Hypochondriasis (Hs), Hysteria (Hy), Masculinity Tendency (MfM), Femininity Tendency (MfF), Social Withdrawal (Si), Anxiety (A), Achievement Need (Ac), Ego Strength (Es). Only the one type of variation was observed. Table 29 presents the levels of significance and cell means for the eight variables.

The outstanding sex characteristic is that female means are higher than those of males on all variables except Es. On Es both sexes show improvement in their sense of identity in that a trend toward higher scores over a one year period is apparent. Males however have the higher means, and therefore a comparatively greater sense of self.

Male means show virtually no, or only slight increase in means

TABLE 29

Repeated Measures - Probabilities, Cell Means,
for Blood Sub-Sample, Grade 8-9

Variables ^a	Level of Signifi- cance	Sex	Cell Means	
			1968	1969
Hs	.04	M	7.71	6.86
		F	11.6	10.5
Hy	.03	M	16.0	18.0
		F	21.8	21.5
MfM	.000	M	18.6	20.0
		F	28.9	28.5
MfF	.000	M	20.1	20.7
		F	28.5	30.8
Si	.01	M	31.4	31.6
		F	38.0	36.0
A	.01	M	19.1	18.7
		F	25.8	24.0
Ac	0.2	M	10.7	11.4
		F	15.8	13.3
Es	.05	M	38.7	40.9
		F	33.0	37.1

^aAll eight variables showed significance in the one
same area: Between Subjects, Sex Main Effects.

on Hy, MfM, MfF, Si, and Ac. Decrease is found to some extent on HS, and A - but it is very slight. The over-all tendency suggests one of very little change in pattern, with an edge of emotional improvement indicated by Es. The female trend seems to be one of

decrease in means. This is apparent on Si, A, and Ac. While remaining practically the same, means show a decrease, but very slight, on Hs, Hy, and MfM. The female decrease configuration is supported by the Es increase.

Compared to males then, while female means are higher than those of males on seven of the eight variables, the relative pattern of females points to less behavioral maladjustment over a one year period for the same female group, whereas that of males suggest little change in personality pattern.

3. Conclusion

In both sets of data - Seven-Eight, Eight-Nine, female means are predominantly higher. Male means tend to remain practically unchanging, whereas female means suggest an increase pattern within the Seven-Eight group, and one of decrease within the Eight-Nine group (a phenomenon which hints of the peak profile encountered in an earlier chapter). The male and female trends would then give substantial support to the hypothesis which states that there is no significant change in personality configuration trend. In the previous analysis of variance interpretations, this male-female characteristic was observed to predominate.

This conclusion raises the question of whether or not the MMPI scales are describing a Blood pattern of behavior of some permanence, something other than the variant "mood" of the moment. As before, however, the possible effects of such conditions as school-

teacher influence, cultural value impact, need to be kept in mind. In addition, the fact of the small N in this analysis imposes considerable caution in the attempt to generalize. From a measurement standpoint, the observed behavioral pattern warrants further study through a qualified application of the MMPI. The simplification of scales on the basis of the principal component findings could possibly better differentiate or define the persistence of and nature of what may well be a characteristic Blood personality configuration.

CHAPTER VIII

Summary and Implications

Restatement of purpose, summary of findings, comparison with the Bryde Results, areas for further research, implications for education, closing remarks, serve as headings in this chapter.

A. Research Goal

The purpose of this investigation was to examine the non-intellectual correlates of Indian educational achievement reduction. This phenomenon of achievement difficulty was pointed to in the presentation of "cross-over" graphs, which are based on achievement data for Cree and Blood students. It was assumed that the stress situation in which Indians live comes to a head at adolescence, and is expressed in the form of personality disturbance which hinders academic achievement. This assumption led to the hypothesis that the personality configurations of Cree, Blood, and White junior high school students change, and that the change in the case of the Indian students impedes educational attainment. More specifically, the hypothesis was interpreted to mean that the configuration of personality variables is different for the Indian students when compared with White pupils, that with increase in grade level the pattern of variables forms an alienation set within the Indian groups, a pattern different from that which appears for the White group, and that for a sub-group of Blood students there is no significant change in personality trend.

For purposes of ascertaining the behavioral components of change, the MMPI was administered to Cree, Blood, and White students in Alberta at the junior high level, which yielded some interesting results.

B. Summary of Findings

In both Indian groups, analysis of variance indicated directional change in personality pattern through the three grades. The dominant characteristic of the change tendency was to peak at the seven-eight grade levels, a trend considered to be indicative of increased emotional difficulty. It was found that the Bloods tended to show a less sharp change profile. In both the Cree and Blood Samples, the most frequent trend of grade nine means was to drop from the eighth level to one higher than that of grade seven. Grade effects were observed to be most striking, as well as grade trends in the interaction patterns. Both trend patterns indicated the peak profile referred to above. In both samples, the most frequent female tendency was seen as one towards less maladjustment through the three grades, whereas the male trend was in contrast. Again in the Blood sample, the male pattern appeared to be less pronounced than that of the Cree.

Visual examination of all personality variable means defined several features. At the grade seven level, the Cree were found to be more constrained, aloof, and the Blood were observed as demonstrating greater social attachment and dependency. At the grade eight level a partial reversal in tendencies was discovered. Again the

Cree appeared to be more anti-social and distant than the Blood, and the Blood to be more socially dependent. However the latter also displayed some repressed hostility. At the grade nine level, both groups exhibited anti-social characteristics, the Cree showing a repression trend, similar to that at the grade seven level, and the Blood appearing to be more expressive in their anti-social pattern.

On the basis of these findings it was felt that a pattern of change was experienced by both Indian groups, that it was frequently the most severe at grade eight, that the Blood tended to experience a somewhat less pronounced degree of emotional difficulty. In both cases, the pattern of variables showing variation through the grades and between the sexes, together in terms of the general trend of all personality means, warrants giving qualified support to the position that the emotional pattern change was one, in varying degree, of alienation, defined once again, as comprising lack of self-sentiment, inadequacy of ego, together with developing inter-personal distance, limited ability in social relationships.

When White personality variables were examined, a relatively clearer pattern of alienation was found, surprisingly. Grade eight was the most frequent peak level. Grade effects were more numerous than in either of the Indian samples, and included the alienation variables such as, e.g. Social Alienation, Self Alienation, Lack of Rapport, Emotional Alienation. Males tended toward less dysfunction, whereas females were in an opposite trend. Comparison of all means presented, however, a relatively less severe pattern of White maladjust-

ment than for the Indians. In light of the means' trends, the interpretation drawn was that the Indian profile was different and somewhat more acute than that of the Whites, but that the divergences were ones of degree and not in kind, not ones of direct and opposing contrasts.

The principal component analysis results were found to be suggestive. They were suggestive, both through providing simpler patterns of variables, thereby better defining dimensions of personality, and, providing thus the possibility of simpler and more discriminative scales for future search. The patterns that were revealed, and which appear equally in both Indian and White groups were broadly described as areas of conflict-anxiety, depression, and sexual affectivity. In addition, several grades shared isolation, resentment, alienation, manipulation, and withdrawal factors. These component patterns were understood to be either indicators of a global alienation syndrome, which is seen as a direct reference to the conflict-anxiety matrix, or to related and complementary facets of that syndrome, expressed by the secondary factors. It was concluded that a remarkable similarity between components existed, given the low numbers involved in the samples.

When repeated measures design was applied to data available on a Blood sub-group, it was found that a comparatively small pattern of very slight change occurred - males in both 7-8 and 8-9 tend toward stability, whereas females show some tendency towards change, a change similar in profile to the peak pattern observed in the analysis

of variance. This finding was viewed to be an indication of consistency in personality change trend, which is to say that the emotivity change tendencies in this Blood sub-sample appear to be consistent.

At each stage of statistical analysis, judgments were tentatively made, due to the absence of evidence concerning environmental, situational factors. However, a better grasp of the importance of the provisional interpretations becomes possible when paralled with the Bryde findings.

C. The Bryde Study

A summary of Bryde's investigation was presented earlier (see Chapter II). It is not felt that a comparison in detail is imperative, but rather that of examination of all variable means would suffice. These means are provided by Table 30.

1. Grade characteristics

a. Grade Eight

Bryde established that the Sioux measure higher on 24 out of 28 variables than did Whites at the grade eight level (1966, pp. 65-66). There were no significant differences between the two groups on K, MfM, R, and Hy2. He concluded that the Sioux were more maladjusted at this grade level than Whites, and that this was also true at the grade nine and grade twelve levels. When his American Sioux and Whites are compared with the Alberta Indian and Whites respectively, certain group characteristics appear. The Alberta Samples have

TABLE 30

Variable Means from the Bryde and Couture Studies

	Grade 8					Grade 9				
	Cree	Blood	White ^a	Sioux	U.S. ^a	Cree	Blood	White	Sioux	U.S.
	38N	56N	56N	164N	76N	25N	32N	47N	159N	126N
L	3.89	4.57	3.47	4.54	3.79	4.12	3.97	3.47	4.14	3.00
F	9.61	17.55	13.13	14.61	9.80	10.28	15.38	11.79	13.26	6.89
K	19.64	10.46	10.79	10.51	11.27	14.16	9.84	11.53	10.35	11.68
Hs	12.63	10.77	8.55	17.63	13.32	10.24	8.13	7.26	15.69	12.25
D	23.92	24.25	19.77	23.85	19.60	22.40	23.69	19.64	23.20	18.83
Hy	20.37	21.59	19.55	21.34	19.83	19.68	18.78	20.19	20.55	19.08
Pd	21.87	21.50	18.70	26.32	23.24	19.88	22.00	19.64	25.13	22.88
MfM	27.24	24.91	25.34	12.90	10.09	26.68	26.94	28.87	11.73	11.97
MfF	26.84	25.13	26.62	13.48	19.23	27.52	28.19	31.09	14.42	15.43
Pa	14.66	13.38	11.74	14.09	11.11	10.48	13.47	11.53	12.77	10.26
Pt	25.58	23.71	18.81	25.30	19.41	23.12	23.59	19.72	25.19	18.72
Sc	33.63	28.77	22.28	31.81	22.77	26.88	25.88	21.11	29.51	19.17
Ma	23.53	21.05	19.81	23.74	21.09	20.16	19.91	19.19	22.89	20.64
Si	33.13	34.86	29.38	34.43	30.77	31.64	35.50	31.64	35.36	30.12
A	24.87	22.27	17.40	22.20	17.49	21.12	21.31	19.55	22.40	17.09
R	14.21	16.18	16.08	15.52	15.02	14.36	16.69	14.87	15.14	14.54
Ac	12.66	13.11	12.51	15.09	12.80	13.60	14.00	14.04	14.84	13.65
Es	31.89	34.18	37.47	34.90	36.93	35.40	37.31	39.96	35.34	40.33
Dy	29.68	29.75	26.15	30.38	25.65	26.20	32.13	28.06	30.09	24.95
D1	13.63	13.18	9.13	12.77	9.24	12.16	12.41	9.64	12.48	8.28
D4	5.84	5.59	4.00	6.46	3.88	5.64	5.63	3.83	5.72	3.46
Hy2	3.97	3.91	4.58	4.32	5.07	3.56	4.06	5.15	3.72	5.46
Pd2	5.05	4.82	4.70	5.55	3.99	4.72	5.34	5.17	4.64	4.20

TABLE 30 (Continued)

	Grade 8					Grade 9				
	<u>Cree</u>	<u>Blood</u>	<u>White</u> ^a	<u>Sioux</u>	<u>U.S.</u> ^a	<u>Cree</u>	<u>Blood</u>	<u>White</u>	<u>Sioux</u>	<u>U.S.</u>
	38N	56N	56N	164N	76N	25N	32N	47N	159N	126N
Pd4a	9.16	8.43	7.19	8.57	6.67	7.76	9.41	7.23	8.19	6.40
Pd4b	8.87	7.38	5.58	7.64	5.16	7.44	7.88	5.77	7.58	4.70
Pal	6.92	5.96	4.32	6.29	3.87	5.16	6.47	4.00	5.25	2.98
Scla	9.08	8.05	6.49	8.55	6.20	7.40	8.31	6.40	7.68	5.06
Sclb	4.47	3.54	2.19	3.59	2.37	3.36	3.00	2.40	3.45	2.05
Pr	19.82	18.79	15.11			18.48	19.81	15.91		

^a "White" indicates Alberta Whites, and "U.S." designates South Dakota Whites.

already been compared (cf. supra, p. 161).

A comparison of the Cree and Blood with the Sioux reveals few differences. The Sioux score higher only on three variables: Hs, Pd, and Ac, which indicates a relatively sharper pattern of hostility and dependency. Bloods are more like the Sioux than the Cree in the areas of K, D, and Hy - a pattern of reactive withdrawal.

American white means are higher than Canadian white means on K, Hs, Pd, Pt, Ma, and Si. The Canadians score higher on F, MfM, MfF, R, Pd2, Pd4a, Pd4b, and Pal. The American profile is characterized by symptoms of withdrawal and feelings of inferiority, and that of Canadians displays greater hostility, anti-social behavior.

When the White groups combined are compared with the Indian groups as a whole, 14 contrasts appear. Whites are lower than Indians on D, Pa, Pt, Sc, Si, A, Dy, D1, D4, Pd4a, Pd4b, Scla, Sclb, and higher on Es.

The differences between the two white groups are not markedly pronounced. However, when comparisons are made with Indian means, both sets of White means are observed to be relatively lower than those of Indians, which signifies a less severe pattern of emotional difficulty.

b. Grade Nine

Of 28 measures, only four yielded non-significant results at the grade nine level when Sioux and Whites were compared in the Bryde Study. These variables were MfM, MfF, R, and Pd2. His comparisons indicated that the Sioux were more alienated than the Whites (1966,

p. 71).

When the Sioux are compared to the Cree and the Blood, six scales show higher Sioux means: Hs, Pd, Pt, Sc, Ma, and A. This set indicates a constrained, hostile and self-centered form of behavior. There does not appear to be a trend, as in the previous grade, for any one of the three groups to be more like the one than any of the other two. The Sioux are more like the Cree in such behaviors as Es, Hy2, Pd4a, and Scla, whereas they resemble the Blood in the areas of K, D, and Si.

When American whites are compared with Canadian whites, the means for Hs, Pd, Ma, are found to be higher. Canadian whites reveal greater dysfunction in 17 areas: F, D, Hy, MfM, MfF, Pa, Pt, Sc, Si, A, Dy, D1, Pd2, Pd4a, Pd4b, Pal, Scla. The Canadians present a profile indicative of greater hostility-dependency than do the U.S. group.

When both white groups as a whole are compared with the three combined Indian samples, ten contrasts appear: D, Pt, Sc, A, D1, D4, Pd4b, Pal, Scla, Sclb. White means are lower in these behavioral areas. Again, these differences are relative, but do clearly indicate, as in the previous grade, lower levels of emotional difficulty.

c. Summary

White-Indian contrasts have been determined in both grades. As established earlier, Canadian Indians differ from Canadian Whites in that they appear to be more emotionally dysfunctional. This finding parallels the Bryde conclusion that Sioux are significantly in greater emotional difficulty than are American Whites. On that basis,

the Bryde Study is substantially replicated. Divergences from Bryde appear in the area of explanation of behavior. Discussion of this point is continued later.

2. Sex characteristics

Bryde found that Sioux girls tended to reveal greater problems of adjustment than did Sioux boys. He explains this difference in terms of traditional Sioux culture which required an inferior, subservient role for females. When placed in competition with males in a modern school setting, females probably experience greater anxiety and insecurity because of traditional Sioux cultural pressures not to compete with males.

The data of this investigation suggested that the female trend was more frequently towards a relatively stronger pattern of emotional adjustment than that of the males. Further data are not presently available to explain this tendency and contrast it with that of the Bryde Study.

3. Divergence from Bryde

It is in the area of behavioral interpretation that some objection to Bryde may be made. It is to the starting point of his position that an observation is possible.

Bryde has stated that the Sioux are alienated from both the White and traditional Sioux culture (see Chapter II). In objection to that position Fisher argues that the Indian is not alienated from white culture, but rather that he may be "alien to" white culture,

never having been a part of it. He further distinguishes by saying that the Indian's situation is one of being within the complex of cultural conflict. This investigation did adopt the Fisher view. It assumed that being outside of the white majority group does not as such imply alienation, that, culturally speaking, the Indian situation is one of stress arising from culture contact, and, psychologically speaking, the pressures impinge, place new demands on Indian personality.

The interpretation of this study's data does not lend support to the Bryde view. On the other hand, neither does it directly enhance the plausibility of the Fisher perspective. Some endorsement, of the Fisher contention, however, may be derived from the interpretation, frequently made throughout this study, that the differences between the Indian groups, and between the Indian and white groups, were ones of degree, rather than kind. If it is true that Indians and Whites are different only in degree, with reference to the dominant cultural setting in which they both find themselves, namely that of the school environment, both then may be considered as being "alien to" it, and both then suffer from the impact of it on themselves, and within themselves, both to some degree, Indians being the more strongly affected. This view also seems to correspond with the Wax (1966) position that the phenomenon is one of "push-out", rather than of tendency to "drop-out", to be failures.

Regarding the use of an alienation theory to explain Indian and White behavior, it is clearly felt that such has been useful. But, it

is also felt that it is still too global and too complex. This weakness largely derives from the nature of the instrumentation employed. It has been suggested that further application of principal components findings would perhaps bring useful refinements to the alienation rationale. This also should be made in light of a second consideration - how much of the observed alienation syndrome is "normal"? In other words, is the pattern simply one of normal growth neurosis in both groups? The population dealt with is basically one of young adults, in a sense in limbo, who, it may be assumed, do not belong quite either way, i.e. nor to childhood, nor to adulthood, and yet are existentially related to both. They are into a transient mode of personality organization. Cultural differences do bear on this dynamic process, but perhaps secondarily. Further research in this area of behavioral dysfunction is essential, and in other areas as well.

D. Need for Further Research

Given the provisional nature of the findings of this investigation, several discernible areas should be given research priority.

1. The MMPI

As a psycho-metric approach, the MMPI has demonstrated its usefulness, both in this study and in that of Bryde. The observations made on the basis of principal component analyses would certainly bring greater discriminatory power to this instrument. Further use of the MMPI scales with Indian populations would also require the application

of item analysis technique. Both efforts may well allow arriving at a clearer picture of the intra-psychic within the individual and the impact of the interpersonal processes between individuals on the intra-psychic. By itself the MMPI has and can have nothing to say about the existence and nature of environmental and situational factors. The MMPI, and other instruments of its kind, remain but a point of reference from inner to environmental and process factors. A further drawback is one that the MMPI shares with most measures of its kind, namely that in concept it is pathologically or negatively oriented, behaviors are defined in terms of "lack of" - this renders a positive description of human traits rather difficult. Finally, a psychometric approach also is fragmentary, for it loses sight of the individual in the measurement process. However, in its defence, it may be said for instance that, while there is no such thing as an "average" Indian, it has some use in providing averages about Indians.

At several points throughout this investigation, the need for further information was stressed.

2. Other data

Little or nothing is known about the central Alberta Cree and the southern Blood, not to mention other tribes in this Province, from an academic-research point of view. A broad area for research could be in terms of the hypothesis that, in white terms, Indian cultures in Alberta are essentially existential-humanistic in their life orientation (Couture, 1969). This in turn raises a number of questions.

What is the nature of the identity-making process within a given Indian culture in Alberta? How are Indian norms learned? What are (Indian) norms? What is the actual impact of and nature of the child-rearing practises that prevail and have prevailed? What are the influential components of the teacher-school environment? What are the interacting and salient variables of the culture-contract-conflict process in this Province? What has made and is making for the dynamics, plurality and durability of the Native culture? Most Indians are at least bilingual and bicultural - what does this mean? Is it adequate to equate Indian cultures with White poverty cultures inasmuch as there are apparent similarities in impact on individuals? Hawthorn (1967, p. 109) seems to think not. This investigator is inclined to concur, pending evidence.

The list of questions is not complete, but does point to what seem to be pressing research issues. It is a sober fact that to this point little has been done about systematic scholarly research concerning the nature and results of the interaction between Indian cultures and White cultures in this Province, and about the implications of this interaction for educational effort.

E. Implications of Findings for Education

A current popular thesis is that Indian pupils seem to have different personality patterns, at the high school level, and that therefore they should be treated differently than white pupils. The findings of this study seem to indicate that the personality patterns are not too dissimilar, although Indian students at the seven-eight

level do appear to suffer greater emotional difficulty. One implication of this study would be that it is at this level of academic attainment that educational intervention is necessary in order to help the Indian student deal with his behavioral problems. A second implication is that personality development effort should focus on all grade levels leading to the climax seven-eight level.

F. Conclusion

The findings of this study, as compared with Bryde's conclusions, to sum up, are tentative and provisional. They do, nonetheless, present some insight into the nature of the difficulties of the Indian student engaged in present educational systems. In the hands of insightful counselors, for instance, the findings could well serve for better understanding of what being Indian is emotionally all about, and lead to better adapted development techniques. But, the findings are frontier. Follow-up study is an imperative.

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APPENDICES

Variable Numbers and Titles

1. L - Lie
2. F - Validity
3. K - Distortion
4. Hs - Hypochondriasis
5. D - Depression
6. Hy - Hysteria
7. Pd - Psychopathic Deviation
8. MfM - Masculinity Tendency
9. MfF - Femininity Tendency
10. Pa - Paranoia
11. Pt - Psychasthenia
12. Sc - Schizophrenia
13. Ma - Hypomania
14. Si - Social Withdrawal
15. A - Anxiety
16. R - Repression
17. Ac - Achievement Need
18. Ex - Ego Strength
19. Dy - Dependency
20. D1 - Subjective Depression
21. D4 - Mental Dullness
22. Hy2 - Affection Need
23. Pd2 - Authority Conflict
24. Pd4a - Social Alienation
25. Pd4b - Self Alienation
26. Pal - External Influence
27. Scla - Lack of Rapport
28. Sc1b - Emotional Alienation
29. Pr - Prejudice
30. Age
31. Sex

APPENDIX A

1. The Lie Scale (L)

The L score is a validating score that affords a measure of the degree to which the subject may be attempting to falsify his scores by always choosing the response that places him in the most acceptable light socially. A high L score does not entirely invalidate the other scores but indicates that the true values are probably higher than those actually obtained. In some cases the L score may be of interest in its own right as a measure of a special personality trend.

2. The Validity Scale (F)

The F score is not a personality scale but serves as a check on the validity of the whole record. If the F score is high, the other scales are likely to be invalid either because the subject was careless or unable to comprehend the items, or because extensive scoring or recording errors were made. A score of over 16 may be indicative of unusual symptoms. A low F score is a reliable indication that the subject's responses were rational and relatively pertinent.

3. The Distortion Scale (K)

The K score is used essentially as a correction factor to sharpen the discriminatory power of the clinical variables measured by the Inventory. As such, K acts as a suppressor variable.

If it is to be given any concrete nonstatistical meaning, the K score is to be thought of as a measure of test-taking attitude, and is related to the L and F attitudes but is somewhat more subtle and probably

taps a slightly different set of distorting factors. A high K score represents defensiveness against psychological weakness, and may indicate a defensiveness that verges upon deliberate distortion in the direction of making a more "normal" appearance. A low K score tends to indicate that a person is, if anything, overly candid and open to self-criticism and the admission of symptoms even though they may be minimal in strength. A low K score can also result from a deliberate attempt to obtain bad scores or to make a bad impression ("plus-getting").

4. The Hypochondriasis Scale (Hs)

The Hs scale is a measure of amount of abnormal concern about bodily functions. It is an improved revision of the original hypochondriasis scale $H - C_H$. Persons with high Hs scores are unduly worried over their health. They frequently complain of pains and disorders which are difficult to identify and for which no clear organic basis can be found. It is characteristic of the hypochondriac that he is immature in his approach to adult problems, tending to fail to respond with adequate insight.

Hypochondriacal complaints differ from hysterical complaints of bodily malfunction in that the hypochondriac is often more vague in describing his complaints and in that he does not show such clear evidence of having got out of an unacceptable situation by virtue of his symptoms as does the hysteric. The hypochondriac more frequently has a long history of exaggeration of physical complaints and of

seeking sympathy.

With psychological treatment a high score may often be improved, but the basic personality is unlikely to change radically. Common organic sickness does not raise a person's score appreciably, for the scale detects a difference between the organically sick person and the hypochondriac. Hs is an indicator of tiredness, inactivity, lethargy.

5. The Depression Scale (D)

The D scale measures the depth of the clinically recognized symptom or symptom complex, depression. The depression may be the chief disability of the subject or it may accompany, or be a result of, other personality problems. A high D score indicates poor morale of the emotional type with a feeling of uselessness and inability to assume a normal optimism with regard to the future. In certain cases the depression may be well hidden from casual observation. This is the so-called "smiling depression". The depressive undercurrent is revealed in such cases by the subject's specific discourse and his outlook on the future. Often such persons insist that their attitude is the only realistic one, since death is inevitable and time passes. Though this may be true, the average person is - possibly erroneously - not so deeply concerned with the grim realities of life. A high score further suggests a characteristic personality background in that the person who reacts to stress with depression is characterized by lack of self-confidence, tendency to worry, narrowness of interests, and introversion. This scale, together with the Hs and Hy scales, will identify the

greater proportion of those persons not under medical care who are commonly called neurotic, as well as individuals so abnormal as to need psychiatric attention.

6. The Hysteria Scale (Hy)

The Hy scale measures the degree to which the subject is like patients who have developed conversion-type hysteria symptoms. Such symptoms may be general systemic complaints or more specific complaints such as paralyses, contractures (writer's cramp), gastric or intestinal complaints, or cardiac symptoms. Subjects with high Hy scores are also especially liable to episodic attacks of weakness, fainting or even epileptiform convulsions. Definite symptoms may never appear in a person with a high score, but under stress he is likely to become overtly hysterical and solve the problems confronting him by the development of symptoms. It has been found that this scale fails to identify a small number of very uncomplicated conversion hysterias which may be quite obvious clinically and with a single or very few conversion symptoms.

The hysterical cases are more immature psychologically than any other group. Although their symptoms can often be "miraculously" alleviated by some conversion of faith or by appropriate therapy, there is always the likelihood that the problem will reappear if the stress continues or recurs.

7. The Psychopathic Deviation Scale (Pd)

The Pd scale measures the similarity of the subject to a group of persons whose main difficulty lies in their absence of deep emotional

response, their inability to profit from experience, and their disregard of social mores. Although sometimes dangerous to themselves or others, these persons are commonly likable and intelligent. Except by the use of an objective instrument of this sort, their trend toward the abnormal is frequently not detected until they are in serious trouble. They may often go on behaving like perfectly normal people for several years between one outbreak and another. Their most frequent digressions from the social mores are lying, stealing, alcohol or drug addiction and, sexual immorality. They may have short periods of true psychopathic excitement or depression following the discovery of a series of their asocial or antisocial deeds. They differ from some criminal types in their inability to profit from experience and in that they seem to commit asocial acts with little thought of possible gain to themselves or of avoiding discovery.

This syndrome can manifest itself in such behaviors as rebelliousness, cynicism, disregard for rules, social aggressiveness which is asocial rather than anti-social, self-centered immaturity. This may sometimes indicate character defect, and less a neurotic state.

8. The Masculinity Tendency Scale (MfM)

9. The Femininity Tendency Scale (MfF)

This scale measures the tendency toward masculinity or femininity of interest pattern; separate T scores are provided for the two sexes. In either case a high score indicates a deviation of the basic interest pattern in the direction of the opposite sex. The items were originally selected by a comparison of masculine with feminine males and of the

two sexes. Some were inspired by Terman and Miles (42), and others are original.

Every item finally chosen for this scale indicated a trend in the direction of femininity on the part of male sexual inverts. Males with very high Mf scores have frequently been found to be either overt or repressed sexual inverts. However, homosexual abnormality must not be assumed on the basis of a high score without confirmatory evidence. Among females high scores cannot yet be safely assumed to have similar clinical significance, and the interpretation must be limited to measurement of the general trait.

This scale emphasizes the contrast of feminine men who have interests similar to those of women with presumably more masculine men in general. Low scores by men indicate an independent masculinity which is at times expressed by uncouth physical aggressiveness. High scores for women reveal masculinity of interest, whereas low scores point to passive femininity. A low delinquency rate is associated with a high Mf. Boys here tend to get bad behavior ratings. Girls high on Mf do not tend to be badly rated. Low girls are like boys with feminine ratings. High scoring boys will appear gentlemanly, whereas low scorers are observed to be aggressively obstreperous and less conforming.

10. The Paranoia Scale (Pa)

The Pa scale was derived by contrasting normal persons with a group of clinic patients who were characterized by suspiciousness, oversensitivity and delusions of persecution, with or without expansive

egotism. The diagnoses were usually paranoia, paranoid state or paranoid schizophrenia. Here again, however, we have observed a few very paranoid persons who have successfully avoided betraying themselves in the items of this scale.

Persons with an excess amount of paranoid suspiciousness are common and in many situations are not especially handicapped. At the adolescent level this scale may indicate trends of perfectionism, stubbornness, secretiveness. Moderate scores indicate a social acceptability deriving from a sensitive responsiveness to social integration. This scale may also show feelings of being supervised too closely. High scoring students may be potential drop-outs. High female scores may indicate a tendency to over-compensate in social contacts.

11. The Psychasthenia Scale (Pt)

The Pt scale measures the similarity of the subject to psychiatric patients who are troubled by phobias or compulsive behavior. The compulsive behavior may be either explicit, as expressed by excessive hand washing, vacillation, or other ineffectual activity, or implicit, as in the ability to escape useless thinking or obsessive ideas. The phobias include all types of unreasonable fear of things or situations as well as overreaction to more reasonable stimuli.

Many persons show phobias or compulsive behavior without being greatly incapacitated. Such minor phobias as fear of snakes or spiders and such compulsions as being forced to count objects seen in arrays or always to return and check a locked door are rarely disabling. Frequently

a psychasthenic tendency may be manifested merely in a mild depression, excessive worry, lack of confidence, inability to concentrate, self-debasement, feelings of personal and racial inferiority constitute the central trait.

12. The Schizophrenia Scale (Sc)

The Sc scale measures the similarity of the subject's responses to those patients who are characterized by bizarre and unusual thoughts or behavior. There is a splitting of the subjective life of the schizophrenic person from reality so that the observer cannot follow rationally the shifts in mood or behavior. There is poor ability in social relations.

The Sc scale distinguishes about 60 per cent of observed cases diagnosed as schizophrenia. It does not identify some paranoid types of schizophrenia, which, however, usually score high on Pa, and certain other cases which are characterized by relatively pure schizoid behavior. It is probable that one or two additional scales will be necessary to identify the latter cases, but this is not surprising in the light of the frequently expressed psychiatric opinion that schizophrenia is not a clinical entity but a group of rather heterogeneous conditions. It contains many behavioral contradictions.

Most profiles with a high Sc score will show several other high points, and further clinical sorting will need to be carried out by subjective study of the case. Exceptional to other scale intercorrela-

tions, the correlation of Sc with Pt for normal cases is .84. Both experience and the fact that this correlation drops to .75 on abnormal cases lead us to feel that, at least for the present, there is value in using both scales.

13. The Hypomania Scale (Ma)

The Ma scale measures the personality factor characteristic of persons with marked overproductivity in thought and action. The word hypomania refers to a lesser state of mania. Although the real manic patient is the lay person's prototype for the "insane," the hypomaniac person seems just slightly off normal. Some of the scale items are mere accentuations of normal responses. A principal difficulty in the development of the scale was the differentiation of clinically hypomaniac patients from normal persons who are merely ambitious, vigorous, full of plans, creative and original.

The hypomaniac patient has usually got into trouble because of undertaking too many things. He is active and enthusiastic. Contrary to common expectations he may also be somewhat depressed at times. His activities may interfere with other people through his attempts to reform social practice, his enthusiastic stirring up of projects in which he then may lose interest, or his disregard of social conventions. In the latter connection he may get into trouble with the law. A fair percentage of patients diagnosed psychopathic personality (see Pd) are better called hypomaniac.

14. The Social Withdrawal Scale (Si)

The Si scale aims to measure the tendency to withdraw from social contact with others. It shows unassertiveness, self-consciousness, shyness, feelings of social inadequacy.

The Si scale is not a clinical scale in the strict sense of being chiefly for use with hospitalized patients; it is, however, valuable for use with normals, and has been widely used in counseling and guidance work.

15. The Anxiety Scale (A)

This scale measures global tendencies to feel general malaise and discomfort in one's relationship to others and his environment. Persons scoring high on the Anxiety scale usually possess a general feeling of insecurity and lack of confidence in their own abilities. There is a strong relationship with the Hy and Pt scales.

16. The Repression Scale (R)

This scale measures the degree to which one feels repressed and held back by circumstances. It reveals a lack of effective self-insight, a reliance on mechanisms of denial and rationalization.

17. The Achievement Scale (Ac)

This scale measures the impulsive tendency of the non-achieving student. It reveals introversion and over-dependence on others.

18. The Ego-Strength Scale (Es)

This scale measures personality integration and resourcefulness,

the degree of control-non-control over perceptual and motivational processes. An absence of integration may be observed in the presence of chronical physical ailments, broodiness, inhibition, seclusion, worrisomeness, intense religiosity, repressive and punitive morality, confusion, submissiveness, chronic fatigue, infantile anxieties.

19. The Dependency Scale (Dy)

The Dependency Scale measures excessive immaturity and the tendency to rely upon others excessively and a non-acceptance of dependency needs.

20. The Subjective Depression Scale (D1)

The Subjective Depression Scale measures the negation of joy in doing things. It also measures pessimism, poor morale and a low esteem of self. High scores on this scale indicate a psychological inertia and lack of energy for coping with problems.

21. The Mental Dullness Scale (D4)

The Mental Dullness Scale measures unresponsiveness and a distrust of one's own psychological functioning.

22. The Affection Need Scale (Hy2)

This need is implied in an obtuse denial of a critical or resentful attitude toward other people. It indicates an over-striving for reinforcement and emotional support.

23. The Authority Conflict Scale (Pd2)

This scale measures resentment of societal demands, conventions, and parental standards.

24. The Social Alienation Scale (Pd4a)

This scale measures one's feelings of isolation from other people, lack of belongingness, externalization of blame for difficulties and lack of gratification in social relations.

25. The Self-Alienation Scale (Pd4b)

This scale measures lack of self-integration, avowal of guilt and dependency.

26. The External Influence Scale (Pa1)

The scale measures the externalization of blame for one's problems, frustrations and failures. It also measures projection of responsibility for negative feelings. In its extreme form, it indicates persecutory ideas.

27. The Lack of Rapport Scale (Scla)

The other social alienation scale is related to the psychopathic deviate scale. This scale is drawn from the schizophrenic scale and indicates a lack of rapport with other people and a withdrawal from meaningful relationships with others.

28. The Emotional Alienation Scale (Sc1b)

This scale measures a feeling of lack of rapport with one's self

and experiencing the self as strange. It indicates a flattening or distortion of affect and a general apathy.

29. The Prejudice Scale (Pr)

This scale measures a complex of anti-sociability, distrust, cynicism, a lack of confidence in self, or others, rigidity, dogmatism.

These descriptions of these scales were taken from Hathaway and McKinley (1951), Dana (1956), Bryde (1966).

APPENDIX B

Means for all Samples

	Cree			Blood			White	
	7	8	9	7	8	9	8	9
1.	4.58	3.89	4.12	4.92	4.57	3.97	3.47	3.47
2.	11.25	9.61	10.28	19.04	17.55	15.38	13.13	11.79
3.	18.63	19.84	14.16	11.30	10.46	9.84	10.79	11.53
4.	12.84	12.63	10.24	11.37	10.77	8.13	8.55	7.26
5.	24.91	23.92	22.40	23.88	24.25	23.69	19.77	19.64
6.	22.45	20.37	19.68	20.86	21.59	13.78	19.55	20.19
7.	22.75	21.87	19.88	21.67	21.50	22.00	18.70	19.64
8.	26.33	27.24	26.68	26.07	24.91	26.94	25.34	28.87
9.	26.66	26.84	27.52	26.58	25.13	28.19	26.62	31.09
10.	13.94	14.66	10.48	13.43	13.38	13.47	11.74	11.53
11.	24.23	25.58	23.12	22.50	23.71	23.59	18.81	19.72
12.	33.02	33.63	26.88	29.45	28.77	25.88	22.28	21.11
13.	21.53	23.53	20.16	21.24	21.05	19.91	19.81	19.19
14.	32.88	33.13	31.64	33.96	34.86	35.50	29.38	31.64
15.	20.63	24.87	21.12	21.09	22.27	21.31	17.40	19.55
16.	14.78	14.21	14.36	15.82	16.18	16.69	16.08	14.87
17.	10.92	12.66	13.60	12.86	13.11	14.00	12.51	14.04
18.	28.95	31.89	35.40	35.01	34.18	37.31	37.47	39.96
19.	26.94	29.68	26.20	28.78	29.75	32.13	26.15	28.06
20.	13.41	13.63	12.16	12.21	13.18	12.41	9.13	9.64
21.	6.23	5.84	5.64	5.20	5.59	5.63	4.00	3.83
22.	3.77	3.97	3.56	3.91	3.91	4.06	4.58	5.15
23.	5.05	5.05	4.72	5.37	4.82	5.34	4.70	5.17
24.	8.66	9.16	7.76	8.47	8.43	9.41	7.19	7.23
25.	7.88	8.87	7.44	7.17	7.38	7.88	5.58	5.77
26.	6.88	6.92	5.16	6.01	5.96	6.47	4.32	4.00
27.	8.64	9.08	7.40	8.45	8.05	8.31	6.49	6.40
28.	3.04	4.47	3.36	3.43	3.54	3.00	2.91	2.40
29.	17.42	19.82	18.48	18.70	18.79	19.81	15.11	15.91
30.	161.72	182.89	190.32	164.07	177.50	189.00	169.98	181.21
31.	0.44	0.42	0.28	0.51	0.41	0.34	0.55	0.47

Standard Deviations for all Samples

	Cree			Blood			White	
	7	8	9	7	8	9	8	9
1.	2.46	2.23	2.53	2.75	2.41	2.25	2.24	2.39
2.	4.18	3.61	4.11	7.86	6.39	5.76	6.89	5.37
3.	6.66	12.52	6.86	4.26	3.42	4.87	3.80	4.31
4.	4.31	4.13	4.26	5.17	4.48	4.31	5.53	4.30
5.	5.66	5.59	6.32	6.06	4.92	5.80	6.32	4.54
6.	5.99	4.68	5.24	7.00	6.43	4.39	6.28	4.87
7.	4.68	4.08	5.76	5.32	4.55	5.44	5.66	5.72
8.	6.66	5.01	5.44	6.27	5.02	7.08	6.97	6.61
9.	6.67	4.78	5.31	5.73	4.47	6.85	7.04	6.67
10.	4.87	3.64	4.62	5.47	4.54	4.53	4.31	4.78
11.	4.45	5.79	7.95	6.94	6.74	7.38	8.42	7.65
12.	9.96	9.06	10.72	11.23	9.48	10.43	10.65	11.02
13.	4.32	8.45	4.47	5.52	4.32	4.69	6.42	5.50
14.	7.09	6.58	5.90	5.89	6.02	5.26	8.80	7.76
15.	6.19	9.56	6.79	6.49	5.97	7.13	7.87	8.01
16.	4.64	3.86	4.68	4.74	3.94	4.23	5.21	4.23
17.	4.09	3.43	4.13	3.08	3.79	2.72	3.35	2.66
18.	6.56	5.20	7.09	6.76	6.29	5.75	8.63	4.64
19.	9.02	7.23	8.22	7.13	6.93	8.71	9.10	7.35
20.	3.86	4.36	4.62	4.38	3.93	4.01	4.20	3.63
21.	2.45	2.68	2.80	2.35	2.31	2.15	2.40	2.18
22.	1.87	1.48	1.60	2.11	1.81	1.90	2.12	2.21
23.	1.65	1.65	1.93	1.56	1.75	1.81	1.68	1.77
24.	3.08	2.72	3.18	3.16	3.32	3.54	2.66	3.27
25.	2.88	2.10	3.32	2.97	3.04	3.37	2.62	3.49
26.	3.50	2.52	2.94	3.16	3.00	3.24	2.77	3.12
27.	3.42	3.44	3.32	3.21	3.63	3.94	3.35	3.37
28.	1.85	2.04	2.13	2.13	1.76	1.48	1.79	1.71
29.	6.37	4.84	3.86	5.16	4.86	4.97	5.53	5.84
30.	22.80	9.22	11.62	11.28	11.45	9.69	6.63	5.91
31.	0.50	0.49	0.45	0.50	0.49	0.47	0.50	0.50

APPENDIX C

Analysis of Variance - Cree Sample

Number of Observations Matrix

	Column	1	2	3
Row	1	28.0	16.0	7.0
	2	36.0	22.0	18.0

Variable	Source	DF	MS	F	Cell Means		
1	Sex	1	19.3	M	4.25	3.13	3.57
	Grade	2	7.41	F	4.83	4.45	4.33
	Interaction	2	1.64				
2			6.71		11.1	10.1	8.71
			34.9		11.3	9.27	10.9
			14.4				
3			214.6		20.4	20.4	17.6
			150.2		17.3	19.4	12.8
			24.9				
4			1.80		12.0	12.9	10.4
			49.3		13.5	12.5	10.2
			13.1				
5			22.2		24.1	23.8	21.6
			55.4		25.5	24.0	22.7
			3.75				
6			49.4		21.4	19.9	18.6
			90.4		23.3	20.7	20.1
			3.09				
7			.320		22.5	21.8	20.1
			58.6		23.0	22.0	19.8
			1.48				
8			1481.3	**	22.1	23.1	20.1
			26.6		29.6	30.1	29.2
			8.03				
9			1518.6	**	21.9	23.0	21.3
			3.28		30.3	29.6	29.9
			10.8				
10			4.06		13.4	15.6	10.9
			119.6	**	14.4	14.0	10.3
			20.9				
11			1.70		24.1	25.5	22.9
			44.9		24.4	25.6	23.2
			.094				
12			2.31		32.4	34.9	25.4
			399.8	**	33.5	32.7	27.4
			43.6				
13			1.86		22.7	22.9	18.9
			91.6		20.6	24.0	20.7
			45.9				
14			10.2		30.4	34.5	31.7
			18.2		34.8	32.1	31.6
			142.3	*			
15			24.2		19.1	23.9	22.1
			216.4	*	21.8	25.6	20.7
			32.4				
16			14.4		12.8	14.4	15.0
			1.39		16.3	14.1	14.1
			60.0	*			
17			5.68		9.46	13.7	13.1
			80.2	**	12.1	11.9	13.8
			55.9	*			
18			138.3		28.0	35.5	37.3
			430.1	**	29.7	29.3	34.7
			187.0	**			

Variable	Source	DF	MS	F	Cell Means		
19	Sex	1	27.0	M	26.2	28.9	25.9
	Grade	2	112.3	F	27.5	30.3	26.3
	Interaction	2	1.53				
20			4.30		13.1	13.4	12.0
			15.7		13.7	13.8	12.2
			.277				
21			.843		6.29	5.93	5.86
			3.01		6.19	5.77	5.56
			.086				
22			11.3	*	3.39	3.63	3.00
			1.89		4.06	4.23	3.78
			.050				
23			36.8	**	5.39	5.69	6.14
			.056		4.78	4.59	4.16
			3.61				
24			1.52		8.39	8.69	8.14
			9.69		8.86	9.50	7.61
			3.01				
25			11.8		8.25	9.13	8.14
			14.7		7.58	8.68	7.17
			.467				
26			.074		6.75	7.31	4.71
			29.8		6.97	6.64	5.33
			3.47				
27			.352		8.39	9.56	6.85
			24.1		8.83	8.72	7.61
			6.04				
28			6.23		3.79	4.50	2.43
			12.9	*	4.06	4.45	3.72
			3.02				
29			10.4		16.8	19.9	17.89
			71.6		17.9	19.8	18.7
			4.95				

Analysis of Variance - Blood Sample

Number of Observations Matrix

	Column	1	2	3
Row	1	39.0	23.0	11.0
	2	36.0	33.0	19.0

Variable	Source	DF	MS	F	Cell Means		
1	Sex	1	15.7	M	4.80	5.22	4.91
	Grade	2	39.0	F	4.32	4.70	3.84
	Interaction	2	.960				
2			39.6		20.4	17.2	16.6
			63.0		16.8	18.5	15.7
			95.2				
3			28.3		11.6	11.5	9.73
			33.0		10.9	9.97	9.21
			3.71				
4			12.2		12.3	10.0	8.90
			69.8	*	9.46	11.9	8.00
			90.6	*			
5			3.63		24.5	23.2	22.9
			7.75		23.3	24.9	23.4
			32.8				
6			.207		22.0	20.0	18.8
			43.1		20.0	21.9	19.2
			62.2				
7			14.0		21.8	21.1	21.1
			3.91		20.9	22.4	22.6
			26.0				
8			14.0		23.2	29.4	25.4
			535.8	**	22.9	27.9	29.1
			65.1				
9			19.2		23.7	30.1	25.5
			507.0	**	23.5	27.8	30.3
			111.8	**			
10			9.11		14.5	11.7	12.5
			25.8		13.3	13.7	13.4
			41.3				
11			188.1	*	23.2	19.7	22.6
			9.25		22.6	25.5	24.6
			164.8	*			
12			3.88		31.0	27.3	26.7
			57.0		26.2	31.1	26.7
			295.2				
13			1.49		22.1	20.4	19.2
			24.9		20.4	21.7	20.3
			42.5				
14			306.4	**	33.4	33.3	32.0
			38.9		34.1	37.3	36.3
			61.4				
15			158.7	*	21.1	19.7	20.2
			30.8		20.5	24.7	22.3
			121.5	*			
16			5.04		15.9	15.5	16.0
			.840		16.0	16.5	16.1
			2.92				
17			1.59		12.1	14.1	13.4
			7.59		13.8	12.3	14.2
			49.5	**			
18			5.00		36.7	35.0	31.5
			113.1		35.4	35.0	34.0
			36.5				

Variable	Source	DF	MS	F	Cell Means		
19	Sex	1	.063	M	27.6	31.6	30.7
	Grade	2	10.1	F	31.6	27.9	30.4
	Interaction	2	234.8	*			
20			25.4		11.6	14.1	14.2
			53.9	*	12.0	13.0	12.2
			19.0				
21			7.23		4.87	6.22	6.09
			6.82		5.49	5.45	4.84
			12.3				
22			.006		3.87	3.91	4.09
			.085		3.95	4.00	3.89
			.219				
23			.928		5.38	5.00	5.45
			4.14		5.24	4.73	5.37
			.102				
24			1.12		7.64	9.70	8.73
			12.9		8.83	7.88	9.89
			40.2	*			
25			1.36		6.56	8.00	8.00
			2.30		7.84	7.12	7.00
			23.8				
26			7.90		5.64	7.13	6.64
			9.05		5.89	5.42	6.63
			16.0				
27			31.4		7.82	9.22	9.73
			12.8		8.00	8.27	7.58
			15.0				
28			1.82		3.10	3.87	3.72
			2.93		3.30	3.33	3.37
			2.29				
29			.965		18.3	20.2	17.7
			10.9		19.5	18.2	18.6
			51.9				

Analysis of Variance - White Sample

Number of Observations Matrix

	Column	1	2
Row	1	29.0	22.0
	2	24.0	25.0

Variable	Source	DF	MS	F	Cell Means
1	Sex	1	.000		3.17 3.82
	Grade	1	.898		3.63 3.36
	Interaction	1	5.13		
2			50.2		12.9 13.5
			62.3		13.7 9.92
			12.0		
3			26.0		10.8 10.4
			2.40		11.1 12.2
			13.1		
4			70.1		7.93 9.72
			14.0		7.92 7.00
			27.0		
5			.039		19.5 20.0
			24.7		19.0 20.4
			5.75		
6			7.52		18.4 20.9
			107.2		19.3 21.1
			2.76		
7			20.9		18.2 19.3
			13.0		20.9 18.4
			79.4		
8			246.2	**	23.2 28.0
			1013.8	**	24.7 32.8
			67.6		
9			425.4	**	23.7 30.0
			1494.5	**	26.4 35.6
			55.3		
10			.395		11.1 12.1
			.082		12.2 11.3
			23.8		
11			16.3		17.4 20.5
			34.5		20.1 19.4
			82.4		
12			51.7		21.4 23.6
			4.73		21.7 20.4
			72.0		
13			30.2		19.1 21.2
			.645		19.9 18.2
			91.0		
14			71.2		28.9 3.4
			70.6		30.4 32.3
			.750		
15			73.8		15.8 19.6
			137.8		19.0 19.9
			51.2		
16			22.6		15.6 16.4
			46.4		14.1 16.0
			7.40		
17			6.87		14.2 12.6
			3.21		11.8 14.0
			92.2	**	
18			298.5	**	39.8 40.9
			306.6	**	33.9 39.8
			142.9		

Variable	Source	DF	MS	F	Cell Means
19	Sex	1	44.8	M	29.4 22.9
	Grade	1	193.0	F	27.0 28.0
	Interaction	1	356.0	*	
20			30.5		9.90 7.59
			23.1		9.67 10.0
			44.4		
21			.907		4.59 2.95
			21.8	*	4.08 3.84
			11.9		
22			.068		5.00 4.73
			.210		4.58 5.04
			3.29		
23			2.91		5.31 4.82
			3.81		4.08 5.36
			19.4	**	
24			.785		8.38 5.68
			60.0	**	7.42 7.00
			32.2	*	
25			28.0		6.03 4.14
			39.2	*	6.46 5.84
			10.1		
26			32.9	*	4.66 2.41
			70.5	**	5.25 4.12
			7.71		
27			30.6		7.14 4.50
			92.2	**	7.54 6.32
			12.4		
28			3.29		2.45 1.73
			7.03		2.63 2.28
			.875		
29			.016		16.9 13.8
			29.7		14.9 15.8
			100.8		

APPENDIX D

Principal Component Analyses

Variable	Cree Grade 7							Cree Grade 8							
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
1	0.027	-0.022	-0.084	-0.052	0.817	0.278	-0.050	-0.416	0.235	-0.167	0.236	0.191	-0.118	-0.270	-0.291
2	0.080	0.042	-0.422	0.126	0.591	0.365	-0.052	-0.436	-0.017	0.222	0.400	-0.280	0.523	-0.006	-0.273
3	0.783	0.288	0.148	-0.080	-0.026	0.039	0.026	0.246	-0.063	0.084	-0.304	-0.590	-0.158	0.106	-0.468
4	0.295	0.598	0.147	0.066	0.138	0.244	0.383	0.435	0.339	0.001	0.655	0.200	-0.003	0.275	-0.051
5	0.119	0.785	-0.029	0.159	0.345	0.079	0.106	-0.093	0.896	0.048	0.270	0.085	-0.067	0.142	-0.053
6	0.102	0.513	-0.013	0.085	0.226	0.657	0.262	0.093	0.180	-0.248	0.849	-0.031	0.175	0.087	0.002
7	0.417	0.372	0.122	0.032	0.167	0.227	0.636	0.138	0.208	-0.056	0.186	-0.071	0.146	0.853	0.130
8	0.112	0.079	0.099	0.932	-0.044	0.068	-0.022	0.093	-0.239	-0.896	0.215	-0.054	-0.018	0.039	0.045
9	0.063	0.132	0.042	0.933	0.061	0.129	-0.027	-0.073	-0.152	-0.878	0.170	-0.071	0.132	0.020	-0.045
10	0.806	0.079	0.122	0.152	0.169	0.202	0.189	0.537	-0.099	0.075	0.142	-0.060	-0.029	0.179	0.158
11	0.342	0.439	0.535	0.042	-0.380	-0.128	0.169	0.831	0.106	-0.061	0.236	0.245	-0.083	-0.011	0.110
12	0.490	0.385	0.524	0.034	-0.154	-0.046	0.127	0.912	0.130	0.061	0.108	-0.019	-0.143	0.025	0.056
13	0.509	0.014	0.226	-0.170	-0.352	0.058	0.295	0.255	-0.009	0.043	-0.117	0.055	0.135	0.182	-0.039
14	0.101	0.332	0.577	0.203	0.312	-0.289	0.023	0.311	0.135	0.240	-0.069	0.836	0.125	-0.074	-0.121
15	0.293	0.408	0.663	0.197	-0.138	-0.024	0.214	0.080	-0.352	-0.158	0.194	0.154	0.615	-0.266	-0.029
16	-0.193	0.326	0.017	0.252	0.717	-0.031	0.049	-0.432	0.357	0.126	0.325	0.447	0.304	0.070	-0.246
17	0.166	-0.024	0.695	0.363	-0.030	0.065	0.062	0.569	-0.402	0.147	0.462	0.285	0.107	-0.102	0.094
18	-0.000	-0.173	0.101	0.155	0.053	0.035	-0.060	-0.149	-0.525	0.627	0.251	0.085	0.084	0.028	-0.155
19	0.193	0.051	0.856	-0.020	0.047	0.022	0.111	0.592	-0.226	-0.087	0.092	0.409	-0.199	0.127	-0.019
20	0.152	0.884	0.112	0.071	0.011	0.040	0.123	0.099	0.933	-0.015	0.039	0.084	-0.103	0.076	-0.033
21	0.143	0.847	0.206	-0.003	-0.125	-0.002	-0.016	0.079	0.855	0.142	0.054	-0.005	-0.002	0.056	0.154
22	0.156	0.025	-0.077	0.235	0.227	0.869	-0.070	-0.174	-0.056	-0.120	0.045	0.140	0.869	-0.047	0.049
23	0.106	-0.021	0.117	-0.013	0.101	0.135	0.175	0.235	0.078	0.155	-0.072	-0.047	-0.031	0.180	0.853
24	0.524	0.205	0.384	0.017	-0.017	0.024	0.578	0.714	0.124	-0.195	-0.138	0.071	0.015	0.451	-0.008
25	0.283	0.135	0.261	0.034	-0.339	-0.213	0.642	0.578	0.258	0.064	0.145	-0.094	-0.080	0.484	0.338
26	0.791	0.149	0.283	0.064	-0.156	0.011	0.204	0.763	-0.001	-0.012	-0.206	-0.066	-0.082	0.066	0.143
27	0.522	0.202	0.400	0.091	-0.129	-0.016	0.055	0.859	-0.026	0.052	-0.142	0.029	-0.017	-0.013	-0.055
28	0.426	0.159	0.092	-0.016	-0.075	0.139	0.110	0.653	0.217	0.088	0.271	-0.274	-0.138	0.027	-0.055
29	0.206	0.093	0.583	0.011	-0.239	-0.258	0.147	0.806	-0.207	-0.087	0.168	0.102	0.076	0.132	0.168
30	0.027	-0.082	-0.032	0.099	0.032	-0.003	-0.056	-0.047	-0.112	0.125	0.033	0.033	-0.031	-0.031	-0.007
31	0.213	0.031	-0.180	-0.698	-0.257	-0.067	-0.196	0.051	-0.104	0.875	0.099	0.005	-0.075	-0.008	0.205

Principal Component Analyses

Variable	Cree Grade 9					
	1	2	3	4	5	6
1	-0.239	0.097	0.142	-0.118	-0.089	-0.913
2	-0.471	0.197	0.489	-0.351	-0.107	-0.383
3	0.756	-0.251	0.263	0.077	0.141	0.427
4	0.733	0.031	0.393	0.280	0.115	0.036
5	0.408	0.061	0.814	0.142	-0.128	-0.083
6	0.186	0.136	0.843	0.072	0.072	-0.148
7	0.630	0.069	0.132	-0.009	0.110	0.297
8	0.385	0.867	0.008	0.080	0.203	-0.022
9	0.140	0.847	0.214	0.011	0.326	-0.152
10	0.830	0.020	0.174	0.011	-0.001	-0.289
11	0.870	0.052	0.044	0.317	-0.013	0.114
12	0.850	0.149	0.140	0.362	0.097	0.209
13	0.641	0.268	-0.101	-0.184	0.317	0.105
14	0.288	0.005	0.167	0.901	-0.124	0.079
15	0.626	-0.027	0.274	0.539	0.298	0.157
16	-0.082	-0.082	0.134	-0.124	-0.232	-0.030
17	0.152	0.244	-0.139	-0.012	0.842	0.098
18	-0.303	-0.109	-0.141	-0.246	0.319	-0.131
19	0.451	0.075	0.005	0.747	0.006	0.026
20	0.628	0.020	0.689	0.208	-0.101	0.188
21	0.779	-0.059	0.383	0.253	-0.143	0.225
22	-0.113	0.191	0.335	-0.049	0.023	-0.087
23	0.372	-0.438	0.240	-0.172	0.517	0.090
24	0.819	0.047	0.106	0.061	0.332	0.139
25	0.803	-0.081	0.173	0.441	0.070	0.171
26	0.906	0.155	-0.621	0.041	0.010	-0.226
27	0.818	0.199	0.099	0.232	0.076	0.123
28	0.765	0.338	0.134	0.132	0.086	0.238
29	0.612	0.177	-0.296	0.376	0.349	0.209
30	0.047	-0.055	-0.694	0.130	-0.038	0.065
31	0.053	-0.951	-0.039	0.039	0.181	0.003

Principal Component Analyses

Variable	Blood Grade 7					Blood Grade 8								
	1	2	3	4	5	1	2	3	4	5	6	7	8	9
1	-0.198	0.759	-0.103	0.011	-0.049	-0.069	0.061	0.007	0.254	-0.153	0.037	-0.018	0.901	0.039
2	0.800	0.226	0.090	0.186	0.052	0.821	0.122	-0.017	-0.121	0.002	0.235	-0.143	-0.070	-0.036
3	-0.176	0.841	0.043	-0.014	-0.121	0.007	-0.088	-0.068	0.782	-0.255	0.083	-0.233	0.242	-0.011
4	0.582	0.409	0.094	0.285	0.074	0.288	0.317	0.177	-0.053	0.036	0.783	-0.088	-0.005	0.003
5	0.332	0.679	0.007	0.508	-0.100	0.133	0.840	0.039	-0.008	-0.081	0.307	0.228	0.105	0.029
6	0.450	0.711	0.052	0.232	0.115	0.217	0.321	0.139	0.067	-0.017	0.713	-0.069	0.085	0.095
7	0.818	0.203	0.066	0.118	0.094	0.691	0.286	0.130	0.002	0.128	0.178	0.078	-0.075	0.410
8	0.249	0.028	0.925	-0.016	0.152	0.127	-0.011	0.848	-0.057	0.007	0.214	0.260	-0.085	-0.017
9	0.110	0.068	0.951	-0.000	0.088	0.042	-0.071	0.867	-0.050	-0.012	0.298	0.211	0.032	0.017
10	0.834	0.267	0.120	0.006	-0.027	0.772	0.054	0.063	0.102	-0.179	0.284	0.214	0.183	0.163
11	0.699	-0.255	-0.003	0.447	0.209	0.503	0.240	0.070	-0.431	0.397	0.223	0.222	-0.224	0.209
12	0.899	-0.092	0.135	0.225	0.023	0.741	0.315	0.048	-0.314	0.275	0.143	0.165	-0.125	-0.063
13	0.625	-0.228	0.177	0.057	0.247	0.595	-0.139	-0.039	0.046	0.301	0.339	0.022	-0.378	-0.168
14	0.316	0.189	0.128	0.170	0.037	0.193	0.179	0.263	0.036	-0.011	-0.053	0.800	0.044	-0.038
15	0.756	-0.169	0.150	0.338	0.233	0.386	0.308	0.232	-0.201	0.358	0.513	0.267	-0.015	0.062
16	-0.160	0.779	0.058	0.098	-0.025	-0.207	0.167	0.156	0.649	-0.176	0.074	0.070	0.421	0.253
17	0.115	-0.029	0.190	-0.052	0.912	0.090	0.071	0.171	-0.004	0.834	0.028	-0.063	-0.227	0.157
18	-0.400	0.069	-0.196	-0.243	0.010	-0.337	-0.162	-0.208	0.695	0.187	-0.264	0.214	-0.040	0.061
19	0.674	-0.372	0.121	0.189	0.282	0.374	0.230	0.158	-0.284	0.368	-0.026	0.566	-0.256	-0.109
20	0.571	0.347	-0.000	0.616	-0.149	0.236	0.867	0.064	-0.027	0.099	0.172	0.217	0.061	-0.000
21	0.477	0.105	-0.077	0.730	-0.053	0.346	0.811	-0.002	-0.110	0.105	0.062	-0.110	-0.048	0.024
22	0.072	0.817	0.058	-0.143	0.077	-0.036	-0.073	0.143	0.229	-0.228	0.154	-0.070	-0.017	-0.020
23	0.233	0.054	-0.117	0.079	0.114	0.143	-0.005	-0.155	0.099	0.066	0.026	-0.078	0.083	0.909
24	0.804	-0.150	0.026	0.008	0.213	0.687	0.204	0.216	-0.247	0.154	-0.019	0.247	-0.161	0.305
25	0.810	-0.137	0.014	0.234	0.152	0.672	0.301	0.099	-0.152	0.338	0.180	0.006	-0.141	0.069
26	0.856	0.018	0.110	-0.156	0.018	0.893	0.012	0.018	-0.098	0.054	0.046	0.294	0.056	-0.031
27	0.798	-0.130	0.084	0.257	-0.148	0.680	0.265	0.085	-0.261	0.193	-0.062	0.299	0.060	0.026
28	0.755	0.006	0.040	0.125	-0.112	0.662	0.337	-0.031	0.099	0.034	-0.106	-0.261	-0.061	-0.005
29	0.382	-0.545	0.106	-0.073	0.452	0.302	-0.017	-0.039	-0.311	0.728	0.025	0.215	0.036	-0.114
30	0.244	0.014	-0.118	0.008	0.036	0.073	-0.037	-0.107	-0.022	-0.016	0.017	-0.085	0.021	0.125
31	0.128	0.102	-0.522	0.052	0.024	-0.020	-0.229	-0.787	0.010	-0.260	0.205	0.121	-0.092	0.193

Principal Component Analyses

Variable	Blood Grade 9				
	1	2	3	4	5
1	-0.542	0.205	0.073	-0.669	0.035
2	0.861	0.142	-0.133	0.003	-0.173
3	-0.867	-0.031	-0.070	-0.159	0.032
4	0.409	0.298	0.251	-0.259	0.686
5	-0.040	0.796	0.412	-0.259	0.129
6	-0.176	0.253	0.470	-0.254	0.663
7	0.445	0.520	0.128	0.382	0.050
8	0.185	0.211	0.928	-0.064	-0.015
9	-0.010	0.189	0.936	0.035	0.090
10	0.585	0.687	0.093	0.080	-0.051
11	0.820	0.377	0.072	0.037	-0.010
12	0.881	0.295	0.126	0.103	-0.030
13	0.648	0.030	-0.184	0.247	-0.065
14	0.432	0.444	0.578	-0.119	-0.233
15	0.822	0.291	0.189	0.024	0.015
16	-0.617	0.379	0.302	-0.003	-0.139
17	0.264	-0.120	0.118	0.164	0.108
18	-0.414	-0.398	-0.052	0.093	-0.164
19	0.819	0.323	0.203	-0.009	-0.160
20	0.245	0.820	0.276	-0.148	0.063
21	0.353	0.774	0.097	0.050	-0.028
22	-0.848	0.080	0.115	0.068	0.146
23	0.109	-0.050	-0.051	0.923	-0.107
24	0.805	0.288	0.210	0.225	0.021
25	0.862	0.238	-0.022	0.154	0.073
26	0.803	0.414	0.142	0.154	0.136
27	0.784	0.164	0.300	0.160	0.036
28	0.772	0.164	0.105	0.247	0.030
29	0.917	-0.044	0.032	-0.018	0.039
30	0.177	0.142	0.185	-0.051	-0.888
31	-0.044	0.018	-0.324	0.037	-0.005

Principal Component Analyses

Variable	White Grade 8					White Grade 9					
	1	2	3	4	5	1	2	3	4	5	6
1	-0.134	0.078	0.149	-0.003	-0.048	-0.161	-0.189	0.062	0.126	-0.112	0.096
2	0.851	0.162	0.063	0.051	-0.144	0.664	0.213	-0.345	0.050	0.361	-0.144
3	0.026	0.272	0.821	-0.024	0.258	-0.229	-0.814	0.060	0.087	0.180	0.187
4	0.624	0.362	0.096	0.217	-0.394	0.421	0.380	0.037	0.060	0.706	-0.033
5	0.308	0.794	0.261	0.213	-0.147	0.318	0.074	0.202	0.626	0.365	0.265
6	0.536	0.261	0.526	0.327	-0.251	0.215	-0.259	0.284	0.296	0.785	-0.048
7	0.751	0.320	0.172	0.112	0.162	0.725	0.265	-0.148	0.315	0.109	-0.098
8	0.112	0.160	0.050	0.923	-0.060	0.035	0.082	0.913	-0.104	0.215	-0.037
9	-0.029	0.169	0.178	0.926	-0.025	-0.068	-0.080	0.953	-0.060	0.070	0.005
10	0.756	0.293	0.355	0.007	-0.125	0.827	0.083	0.014	0.070	0.294	0.044
11	0.573	0.529	-0.246	0.174	-0.158	0.585	0.658	0.065	0.199	0.148	-0.032
12	0.814	0.367	-0.136	0.084	-0.111	0.792	0.486	0.015	0.126	0.176	0.044
13	0.744	-0.151	-0.214	0.278	0.285	0.645	0.280	-0.114	0.038	0.293	-0.221
14	0.285	0.845	-0.010	0.079	0.193	0.244	0.467	0.078	0.228	-0.404	0.520
15	0.532	0.398	-0.227	0.377	-0.085	0.415	0.803	0.120	0.191	0.262	-0.084
16	-0.005	0.570	0.530	0.108	0.186	-0.171	-0.320	0.081	0.170	-0.026	0.836
17	0.103	-0.155	-0.105	0.288	0.435	0.099	0.021	0.269	0.025	0.045	-0.198
18	-0.161	-0.014	0.233	-0.048	0.868	-0.411	-0.414	-0.217	-0.081	-0.115	-0.025
19	0.459	0.460	-0.281	0.412	0.059	0.367	0.736	0.181	0.115	-0.051	-0.098
20	0.366	0.861	0.018	0.138	-0.154	0.537	0.437	0.171	0.422	0.149	0.292
21	0.536	0.586	0.067	0.134	-0.178	0.441	0.315	0.120	0.665	0.070	0.151
22	-0.063	-0.132	0.895	0.206	-0.019	-0.222	-0.859	0.235	0.019	-0.047	-0.011
23	0.138	-0.021	-0.052	-0.075	0.820	0.354	0.038	-0.304	0.039	0.051	-0.072
24	0.601	0.263	-0.084	0.112	0.275	0.616	0.434	0.104	0.226	-0.102	-0.320
25	0.627	0.374	-0.220	0.056	-0.058	0.729	0.440	-0.022	0.394	0.071	-0.161
26	0.910	0.075	-0.016	-0.137	-0.041	0.844	0.273	-0.054	0.061	0.207	0.059
27	0.787	0.336	-0.036	-0.039	0.132	0.858	0.353	-0.035	0.037	-0.159	-0.023
28	0.434	0.299	0.101	-0.058	-0.269	0.688	0.184	0.075	0.490	0.019	0.007
29	0.535	0.316	-0.443	0.110	0.223	0.351	0.828	-0.078	0.074	0.025	-0.050
30	0.017	0.064	0.069	-0.051	-0.144	0.092	-0.099	-0.287	0.814	0.091	0.054
31	-0.055	0.019	-0.088	-0.328	0.126	0.091	0.092	-0.817	-0.169	0.088	-0.171

APPENDIX E

Repeated Measures - Grade 7 - 8

Number of levels of 'A' - 2

Number of Repeated Measures - 2

Number of Subjects in 'A' - 8, 12

'A' = Subjects, 'B' = Measures

Variable	Source	DF	MS	F	Cell Means	
					1968	1969
1	Between Subjects	19		M	5.63	4.38
	'A' Main Effects	1	12.2	F	4.17	3.58
	Subjects Within Groups	18	5.56			
	Within Subjects	20				
	'B' Main Effects	1	8.07			
	'A' x 'B' Interaction	1	1.07			
	'B' x Subject Within Groups	18	6.01			
2			82.8		15.4	14.5
			62.6		16.6	19.1
			7.01			
			28.7			
			56.4			
3			44.2		13.0	13.4
			16.0		11.4	10.7
			0.34			
			3.04			
			22.0			
4			0.27		10.9	6.38
			27.6		8.33	9.25
			30.8			
			70.4			
			29.7			
5			21.6		23.4	20.1
			31.0		22.2	24.3
			2.82			
			70.4			
			16.8			
6			0.51		20.9	16.0
			38.6		17.8	18.7
			37.6			
			80.5			
			33.8			
7			40.0		19.5	19.0
			30.9		20.8	21.8
			0.42			
			4.81			
			17.5			
8			248.1	*	24.4	21.1
			40.5		25.8	29.9
			2.02			
			132.0	**		
			16.3			
9			183.8	**	26.4	22.1
			24.4		26.5	30.8
			0.0			
			173.4	*		
			26.4			
10			2.60		12.5	11.9
			32.8		11.0	14.4
			18.7			
			39.2			
			16.9			
11			142.6		17.5	18.4
			59.7		20.5	23.1
			28.7			
			7.00			
			51.6			

Variable	Source	DF	MS	F	Cell Means	
					1968	1969
12	Between Subjects	19		M	24.0	25.1
	'A' Main Effects	1	196.2	F	27.2	31.0
	Subjects Within Groups	18	129.0			
	Within Subjects	20	59.0			
	'B' Main Effects	1	17.6			
	'A' x 'B' Interaction	1	140.0			
	'B' x Subject Within Groups	18				
13			3.04		19.8	21.1
			27.08		20.6	21.4
			11.7			
			0.70			
			23.7			
14			9.60		31.6	32.4
			24.6		33.9	32.1
			2.81			
			16.0			
			21.7			
15			77.1		17.8	19.3
			40.6		20.3	22.4
			32.3			
			1.06			
			47.7			
16			7.70		16.6	16.8
			24.4		15.4	16.2
			1.84			
			.94			
			17.1			
17			9.20		12.6	13.5
			8.16		12.5	15.6
			37.6	*		
			11.7			
			7.05			
18			75.9		39.1	39.5
			63.4		36.9	30.0
			0.49			
			3.49			
			17.8			
19			180.3		26.8	24.3
			44.4		29.5	30.2
			78.2	*	9.75	8.88
			13.5		11.3	13.1
			2.21			
20			17.6			
			11.8			
			17.61		3.63	3.75
			5.30		4.42	5.67
			4.54			
21			3.04			
			5.53			
			0.60		4.13	3.36
			3.56		3.75	4.25
			0.15			
22			3.75			
			4.29			

Repeated Measures - Grade 7 - 8

Variable	Source	DF	MS	F	Cell Means	
					1968	1969
23	Between Subjects	19		M	5.25	5.00
	'A' Main Effects	1	3.75	F	5.25	6.25
	Subjects Within Groups	18	1.90			
	Within Subjects	20				
	'B' Main Effects	1	1.35			
	'A' x 'B' Interaction	1	3.75			
	'B' x Subject Within Groups	18	2.99			
24			34.5		6.50	7.88
			10.4		8.67	9.50
			11.7			
			0.71			
			10.7			
25			56.1	*	4.63	5.38
			12.7		7.42	7.42
			1.35			
			1.35			
			9.43			
26			10.0		5.75	3.88
			11.1		5.25	6.42
			1.21			
			22.2			
			8.96			
27			22.2		6.38	8.50
			8.77		8.17	9.75
			33.0			
			0.70			
			13.6			
28			1.67		3.13	2.63
			3.85		2.50	4.08
			2.82			
			10.42			
			3.75			
29			88.8	*	16.4	16.4
			19.7		20.2	18.7
			5.41			
			5.39			
			16.8			

Repeated Measures - Grade 8 - 9

Number of levels of 'A' - 2

Number of Repeated Measures - 2

Number of Subjects in 'A' - 7, 8

'A' = Subjects, 'B' = Measures

Variable	Source	DF	MS	F	Cell Means		Variable	Source	DF	MS	F	Cell Means	
					1968	1969						1968	1969
1	Between Subjects	14		M	4.14	5.14	12	Between Subjects	14		M	23.29	21.71
	'A' Main Effects	1	6.82	F	3.38	4.00		'A' Main Effects	1	191.36	F	29.37	25.75
	Subjects Within Groups	13	10.97					Subjects Within Groups	13	118.42			
	Within Subjects	15						Within Subjects	15				
	'B' Main Effects	1	4.93					'B' Main Effects	1	50.39			
	'A' x 'B' Interaction	1	0.26					'A' x 'B' Interaction	1	7.89			
	'B' x Subject Within Groups	13	1.15					'B' x Subject Within Groups	13	49.14			
2			14.30		13.57	14.29	13			5.26		19.57	20.00
			32.6		16.13	14.50				23.12		21.50	19.75
			1.55							3.26			
			10.22							8.86			
			11.82							7.74			
3			16.21		10.57	12.00	14			225.87	*	31.43	31.57
			28.91		8.63	11.00				25.08		38.00	36.00
			27.01							6.45			
			1.67							8.58			
			8.91							25.65			
4			106.51		7.71	6.89	15			264.02	**	19.14	18.71
			21.02		11.63	10.50				27.32		25.75	24.00
			7.33							8.86			
			0.14							3.26			
			19.30							28.66			
5			114.20		22.00	19.43	16			15.43		15.71	15.29
			27.66		23.50	25.75				24.42		15.63	18.25
			0.20							9.01			
			43.39							17.41			
			16.89							21.91			
6			159.72	*	16.00	18.00	17			87.77	*	10.71	11.43
			29.90		21.75	21.50				12.19		15.75	13.25
			5.72							5.95			
			9.45							19.29			
			21.90							16.29			
7			10.22		19.28	19.00	18			166.60	*	38.71	40.86
			27.44		19.75	20.88				37.18		33.00	37.13
			1.32							73.35			
			3.71							7.29			
			5.95							33.99			
8			660.01	**	18.57	20.00	19			138.67		28.14	26.43
			25.06		28.88	28.50				90.68		34.38	29.75
			2.06							87.31			
			6.08							21.73			
			8.37							48.32			
9			631.49	**	20.14	20.71	20			52.15		11.14	10.57
			16.55		23.50	30.75				20.21		13.38	13.63
			14.85							0.19			
			5.27							1.26			
			4.82							6.43			
10			0.01		10.71	11.71	21			3.00		5.57	5.29
			22.53		11.63	10.88				8.76		5.63	6.50
			0.12							0.65			
			5.72							2.51			
			4.67							1.78			
11			81.93		20.29	19.71	22			2.75		3.29	4.00
			57.84		24.75	21.88				3.75		4.13	4.38
			22.17							1.74			
			9.90							0.40			
			43.18							2.57			

Repeated Measures Grade 8 - 9

Variable	Source	DF	MS	F	Cell Means	
					1968	1969
23	Between Subjects	14		M	5.43	5.71
	'A' Main Effects	1	6.69	F	4.13	5.13
	Subjects Within Groups	13	3.71			
	Within Subjects	15				
	'B' Main Effects	1	3.09			
	'A' x 'B' Interaction	1	0.95			
	'B' x Subject Within Groups	13	2.06			
24			33.43		5.43	6.71
			14.41		8.38	8.00
			1.55			
			5.15			
25			5.05			
			17.61		5.43	6.00
			7.91		7.63	6.88
			0.06			
26			3.26			
			6.12			
			7.60		3.86	4.00
			9.99		5.13	4.75
27			0.10			
			0.50			
			1.95			
			13.57		6.29	6.14
28			11.48		7.63	7.50
			0.14			
			-0.00			
			3.45			
29			0.10		2.29	2.86
			2.11		2.38	3.00
			2.67			
			0.01			
29			0.98			
			58.69		17.57	18.57
			19.25		22.63	19.13
			11.67			
29			37.79			
			14.31			

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